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Mirror-Touch Synaesthesia

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Mirror-Touch
Synaesthesia

Thresholds of Empathy with Art

OXFORD

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Mirror-Touch Synaesthesia, in bringing together leading neuroscientists, artists, philosophers, and experiencing synaesthetes, is of equal importance to the fields of science and the humanities, shedding new light on *in-feeling* (empathy) and its vital relevance to contemporary life and culture. The book reminds us of how, even in our period, which is characterised by accelerated scientific discoveries, cross-disciplinary exchange and the contribution of *artworking* and philosophy to science and its methods, in this case to neuroaesthetics, is increasingly crucial and far-reaching, leading to implications for future research in terms of social, cultural, and ethical critique.

Bracha L. Ettinger, artist, psychoanalyst, philosopher, and author of *The Matrixial Borderspace* and *And My Heart Wound-Space*.

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Orchestration of the Senses in Yellow: Eisenstein's Fourth Dimension, Memory, and Mirror-Touch Synaesthesia

Patricia Pisters

Luria, Eisenstein, Vygotsky

In the 1920s, the famous Russian neurologist Alexander Luria received the newspaper reporter Solomon Shereshevsky in his office. 'S.', as Luria called his soon-to-be patient, had been sent by his employer because he never took any notes and yet seemed to remember every detail of his assignments. Luria began to test S. in his laboratory and soon found out that 'the capacity of his memory had no distinct limits'.¹ Luria was interested in the total personality and life history of his patients, and he followed S. for over 30 years. In *The Mind of a Mnemonist: A Little Book About a Vast Memory*, published in 1967, the neurologist reveals 'a glimpse of his patient's inner world', combining scientifically observed data with more biographical impressions of S.'s life.² In probing S.'s mind, Luria soon understood that his seemingly limitless memory was related to multiple forms of synaesthesia. Words settled in his mind as 'puffs of steam or splashes'³ and were translated into rich images. Voices arrived as metals, in colour, with taste and texture; they might be 'yellow and crumbly' or they might, like the filmmaker Sergei Eisenstein's, feel 'like a bouquet, protruding a flame with fibers'.⁴ Eisenstein knew S. and in his own book *The Film Sense*, the filmmaker reminds us that S. was the prototype for Hitchcock's Mr Memory in *The Thirty-Nine Steps*.⁵ Like Mr Memory, S. became a vaudeville act, astonishing audiences with his mnemonic capacity. In Hitchcock's film, Mr Memory's performance is introduced with the announcement that 'Mr Memory has left his brain to the British Museum', indicating a fascination for the brain that is very familiar to a contemporary audience. Likewise, Eisenstein, an artist discovering the powers of cinematography, was fascinated by the secrets of the brain.



Eisenstein at work in his lab.

It was no coincidence that Eisenstein knew Luria's patient S. In fact, from the mid-20s onwards, Eisenstein, Luria, and the sociologist and cultural psychologist Lev Vygotsky carried out a common and long-standing research programme that 'aimed to combine neurosciences, social sciences and cinema theory to address the neural basis and semiotics of screen aesthetics'.⁶ Luria, Vygotsky, and Eisenstein shared a deep interest in the brain which they approached from different angles: physiology, sociology, and aesthetics. Although to this day, very little is known about this collaboration (as much of especially Eisenstein's work was for a long time censored and still needs to be translated from Russian),⁷ it is clear that, in combining their disciplinary backgrounds, the neuroscientist, sociologist, and filmmaker shared an integrative conception of the brain and mind, positing that 'cognitive processes descend from the complex interaction and interdependence of biological factors that are part of physical nature, and cultural factors that appeared in the course of human evolution'.⁸ The collaboration of this unique Russian trio intriguingly anticipates certain areas of contemporary neuroscience—in particular the Embodied, Embedded, Enactive, Extended, and Affective, or so-called '4EA' strands in which the brain is not only seen as pure neuronal materiality, but also as a dynamic system that is fundamentally connected to the body, to actions and affections, and to the world and other elements that extend and influence the brain beyond the skull.⁹ And, as I will suggest by returning to

Eisenstein, we might find visionary inspiration in this historical reference for the transdisciplinary investigations in mirror-touch synaesthesia that are the focus of this volume. More specifically, the phenomenon of synaesthesia is of particular interest for Eisenstein in his theories about art, which I will elaborate in relation to mirror-touch.

Synaesthesia and the Magic of Art

Let's first return to Russia in the first half of the twentieth century and to Eisenstein's own ideas about synaesthesia in art. Establishing a profound relation between art (film art) and human experience, he writes: '(. . .) we shall see that Man and the relations between his *gestures* and the *intonations* of his voice, which arise from the same emotions, are our models in determining audio-visual structures, which grow in an exactly identical way from the governing image (. . .)'.¹⁰ For Eisenstein, thought, emotions, subjectivity, and the language of cinema are fundamentally interconnected; the (audio-visual) image operates according to the same logic as human behaviour and emotion. One important way of understanding this deep connection between screen, body, and brain is by way of synaesthesia. In a late text entitled *The Magic of Art* which was preserved in Luria's archive for 50 years after Eisenstein's death and which is now the prologue to the 2002 Russian edition of Eisenstein's still untranslated *Methods*, Eisenstein stated that 'magic' here is not an empty figure of speech:

For art (the real one) artificially turns the spectator back to the sensory thinking stage, to its norms and types, and this stage is in reality a stage of magic interrelation with nature. When you have reached, for example a synaesthetic merging of sound and image, you have placed the viewer's perception under sensory thinking conditions, where the synaesthetic perception is the only possible one – there is still no differentiation of perception. And you have the spectator 're-orientated' not to the norms of today's perception, but to the norms of a primordial sensory one – he is 'returned' to the magical stages of normal sensation. And the idea that has been brought about by such a system of influences, incarnated into a form by such means, irresistibly controls emotions.¹¹

According to Eisenstein, art has the capacity to bring the spectator back to a 'sensory thinking stage,' a stage that he imagines as pre-existing our habitual perceptions. This primordial stage can be compared to what 4EA-cognitivists call

the impersonal affective dimensions of emotions that are immediately embodied.¹² I will return to this point momentarily. What is important for now is that Eisenstein was interested in the relation between the human (embedded, embodied) mind and the power of art to change perceptions (and memories, experiences, etc.).¹³ Synaesthesia was for Eisenstein an important first step in understanding how a good work of art can make a formal translation to reach this primordial sensory stage. In *The Film Sense*, Eisenstein discusses elaborately how the different senses can be 'synchronised' in an artwork. Touch, smell, sight, light, colour, hearing, temperature, and movement (speed, slowness, rhythm) can be rendered in many different ways and in different combinations in a 'polyphonic montage' that 'advances multiple series and lines' and produces an orchestration of the senses.¹⁴ He gives an example of the graphic, dramatic lines in the procession sequence in *The Old and New* (*The General Line*, 1929):

1. The line of heat, increasing from shot to shot
2. The line of changing close-ups, mounting in plastic intensity
3. The line of mounting ecstasy, in the dramatic content of the close-ups
4. The line of the women's voice (faces of the singers)
5. The line of the men's voices (faces of the singers)
6. The line of those who kneel under the passing icons (increasing in tempo)
7. The line of grovelling, uniting both streams in the general movement of the sequence 'from heaven to dust'.¹⁵

Each shot contributes to the totality of the film, around the theme from the 'old' to the 'new'. After 'the old' of the religious procession sequence, the milk-separating sequence builds towards 'the new' of the communist revolution. But in bringing all these lines together, they need to be synchronised at some deeper level, Eisenstein argues.

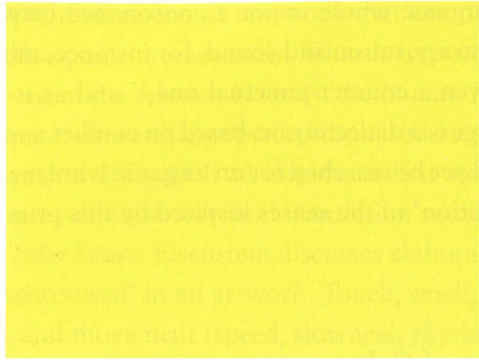
The principles are the same for the sound film, even if this extra audio line (in itself also complex) invites even more careful composition in relation to the image. About *Alexander Nevsky*, Eisenstein explains: 'Here the lines of the sky's tonality—clouded or clear, of the accelerated pace of the riders, of their direction, of the cutting back and forth from Russians to knights, of the faces in close-up and the tonal long-shots, the tonal structure of the music, its themes, its tempi, its rhythm, etc. (. . .) Many hours went into the fusing of these elements into an organic whole'.¹⁶ What Eisenstein is aiming at with his synchronisation of

the senses into an organic whole is not a consonance between all the sensory elements. On the contrary, music and sound, for instance, might have quite a dissonant relation or even a counter-punctual one,¹⁷ and as is known, Eisenstein's conception of montage is a dialectic one, based on conflict and dynamic encounter between shots.¹⁸ And yet he searched for an 'organic wholeness', proceeding from an 'inner synchronisation' of the senses inspired by this primordial synaesthesia.

Making Sense of Colours

In *The Film Sense*, Eisenstein devotes an entire chapter to different kinds of colour synaesthesia, especially relating to the colour yellow and referring to well-known examples in literature and art. He is highly critical of the Russian painter Wassily Kandinsky's experimental theatre piece *The Yellow Sound* because Kandinsky's synaesthetic merging of music and colours is too abstract, too uniform for Eisenstein's likings. He calls Kandinsky's method a 'conscious attempt to divorce all formal elements from all content elements' which evokes 'obscurely disturbing sensations' that do not, however, enter into meaningful relationships.¹⁹ While it is of course perfectly fine not to look for meaningful relations (and just enjoy the formal qualities of 'yellow sounds'), it is significant that Eisenstein includes feeling **and** meaning, form **and** content, when he talks about his orchestration of the senses. Moreover, according to Eisenstein, Kandinsky looks for the common denominator between the arts but does not leave intact the medium specificities that Eisenstein finds so important to keep in mind.

In contrast to Kandinsky's highly abstract form of synaesthesia, on the other side of the spectrum, Eisenstein also discusses the meanings culturally ascribed to colour, which he sees as equally non-instructive about the true synaesthetic connections colours can make to other sense-impressions and to other media. Eisenstein quotes many literary and artistic examples (from T. S. Eliot and Walt Whitman to Picasso and Van Gogh) that demonstrate the spectrum of positive gold-yellow to negative pale-green yellow with ascribed meanings ranging from warmth and light to perfidy, treason, and sin. He emphasises that these colours contain 'a directly sensual base' into which associations are woven.²⁰ However, yellow should not automatically be equated with wisdom, warmth, and light or envy, illness, and deception as, for instance, in the French expression '*un bal jaune*'.²¹ Abstracting colour from the concrete phenomenon and seeking **absolute**



Shutter Stock Yellow.

correlations of colour and sound, colour and emotion, and colour and eternal meaning will get us nowhere, Eisenstein argues.²²

Eisenstein wants to preserve the direct sensual and embodied effect of colour and, at the same time, keep its meaning open to contextual elements of form and content in a much more varied way than fixed interpretations suggest. As a more positive example, he refers to the nineteenth-century French poet Arthur Rimbaud's classic synaesthetic poem on the colours of vowels. Rimbaud does not speak of an 'absolute correspondence' but of 'images to which he has attached personal colour concepts'.²³ The vowel 'I' for Rimbaud corresponds not merely to 'Red' but to '... purples, blood spit out, laugh of lips so / Lovely in anger or penitent ecstasies'.²⁴ Eisenstein argues that colour, as exemplified by Rimbaud's poem, stimulates a conditioned reflex, which recalls a complex constellation of memories and senses. In *The Film Sense*, he quotes the complete poem, connecting the pronunciation of each vowel moreover to instrumental timbres and sounds, and to a whole catalogue of emotions.²⁵ Each colour becomes an interplay of senses (as both sensations and meanings) that can and needs to be reinvented and brought into resonance again and again in new and variegating ways, orchestrated by the artist for maximum effect on the reader/spectator.

All this does not mean that Eisenstein denies a direct relationship between colours and emotions. Here he refers to the scientific neurological experiments that had established that certain sense-impressions operate in 'dynamogeneous' or 'inhibitive' ways on the brain's distribution to the body; red, for instance, is

'Voyelles' by Arthur Rimbaud (1872)

Vowels: Black A, white E, red I, green U, blue O,
Someday I shall name the birth from which you rise:
A is a black corset and over it the flies
Boil noisy where the cruel stench fumes slow,

Shadow-pits; E, candor of mists and canopies,
Shiver of flowers, white kings, spears of the glacial snow:

I, purples, blood spit out, laugh of lips so
Lovely in anger or penitent ecstasies;

U, cycles, divine vibrations of green seas;
The peace of animal pastures, peace of these
Lines printed by alchemy on the great brows of the wise;

O, the great Trumpet strange in its stridencies,
The angel-crossed, the world-crossed silences:
– O the Omega, the blue light of the Eyes

Vowels by Arthur Rimbaud (1854–1891), Translation by Muriel Rukeyser, quoted in Eisenstein, *The Film Sense*, 90.

dynamogeneous, while violet is inhibitive.²⁶ But again these affects can be integrated in complex colour pallets and constellations of memories and meanings. It is here, too, that Eisenstein recalls patient S.'s remarkable forms of synaesthesia. In a conversation that Eisenstein had with S., the synaesthete told him that 'the scale of vowels was seen by him not as colours, but as a scale of varying light values. Colour for him is summoned only by the consonants'.²⁷ And for S., each word, each number, each sound was connected to a light scale or colour that gave him his vast memorising capabilities. While, for S., these automatically summoned synaesthetic images may be absolute in his system, Eisenstein makes a strong point in claiming that, in art, there are no absolute relationships that are decisive. Even within the limitations of a colour range of black and white, in which Eisenstein himself made most of his films, the colour sensations

and meanings are not pre-determined. He gives the examples of even the use of simple black and white in very different ways—in *The Old and the New*, black stands for old, criminal, outdated; and white signifies new, life, abundance, happiness. In *Alexander Nevsky*, on the other hand, white is related to the cruelty of Germans, while black is positively connoted to the heroic Russian warriors. And so Eisenstein argues that, in artistic synaesthesia, ‘the emotional intelligibility and function of colour will rise from the natural order of establishing the colour imagery of the [part of the] work, coincidental with the process of shaping the living movement of the whole work’.²⁸ Each work creates its own inner synaesthetic resonance—or in any case, it is for the artist to draw it out.

The Fourth Dimension and Mirror-Touch Synaesthesia

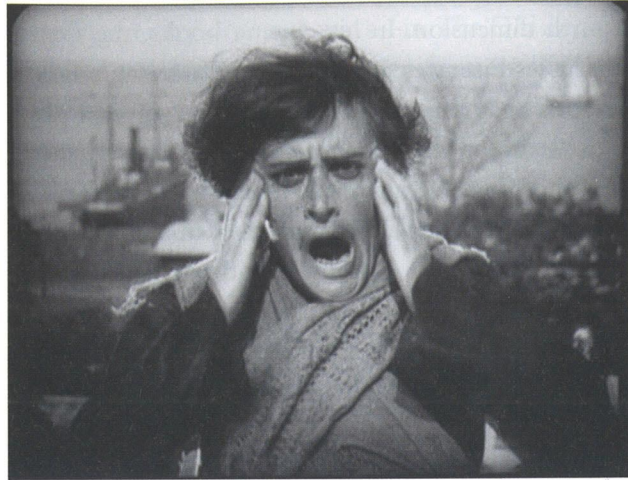
So far, the focus of this chapter has been on different kinds of synaesthesia (especially coloured phonemes and sound) and its relation to art production. The question of spectatorship and mirror-touch as a newly discovered form of synaesthesia will be more central in the remainder of this chapter. As Jamie Ward and Michael Banissy (also contributors to this volume) have demonstrated in scientific experiments, mirror-touch is related to empathy because of ‘the shared affective neural systems in which common brain areas are activated during both experience and passive observation’.²⁹ And, as we can learn from Eisenstein, this physiological form of empathy is not unrelated to the other forms of synaesthesia as an orchestration of the senses, especially if we want to reach this ‘primordial’ level where art can deeply move us. All of Eisenstein’s reflections on synaesthesia in the artwork take ‘as its guide the total stimulation through all [senses]’ and ultimately aim at reaching the ‘feeling of the shot as a whole’, or what Eisenstein calls the fourth dimension: ‘In this way, behind the general indication of the shot, the physiological summary of its vibrations as a *whole*, as a complex unity of the manifestation of all its stimuli, is present’.³⁰ This ‘feeling of the shot as a whole’ is what Eisenstein calls the filmic fourth dimension. An artist who manages to synaesthetically orchestrate the senses reaches this primordial physiological fourth dimension within the artwork and touches the audience in their own primordial physiological (and largely unconsciously operating) synaesthesia. At this deep level of the fourth dimension, artworks affect audiences by way of mirror-touch.³¹

To explain this further, let’s look at a few more ways in which Eisenstein expresses this fourth dimension. In his cinema books, the French philosopher Gilles Deleuze discusses Eisenstein’s aesthetics by focusing on the ways in which his films produce this deep affective quality. Deleuze gives a physiological definition of affect as ‘a motor tendency on a sensitive nerve’ moving between a ‘reflecting surface and intensive micro-movements’.³² He refers to the dynamic graphic lines in Eisenstein’s *Battleship Potemkin*, but also to the particular use of close-ups that express power as change and transformation, as qualitative leaps.³³ Deleuze calls these close-ups ‘affection-images’. Affection-images in Eisenstein express power, such as the call for revolutionary change in the close-ups of hands and faces of the rising people in his revolution films. According to Deleuze, affection-images speak directly to the spectator’s feelings of empathy; they touch us in a direct and embodied way.³⁴

Affection-images can also express a more contemplative affective quality of wonder and sorrow, as in the face of Renée Falconetti in the Danish filmmaker Carl Dreyers’ famous film *The Passion of Joan of Arc*. Affection-images are not limited to close-ups of faces or hands. They can be induced by colour, graphic patterns, disorienting spatial framings, and other aesthetic means.³⁵ I will return to colour in affection-images further on. But in close-up, the face (or faciality



Graphic line in *Battleship Potemkin* (Eisenstein, 1925).
Reproduced with permission of FSUE Mosfilm Cinema Concern.



Face and hands in Potemkin (Eisenstein). Reproduced with permission of FSUE Mosfilm Cinema Concern.

and expressive qualities of body parts or objects in close-up) and affection are intrinsically intertwined.

And here we also move once more from the synaesthetic and affective qualities in the work of art to how these images affect us as spectators. Affection-images touch us directly on a physiological level, the physiological level of the fourth dimension that Eisenstein was investigating through his art, but also in



The Passion of Joan of Arc (Dreyer).

collaboration with Luria and Vygotsky. In more contemporary neuroscientific terms, it is possible to argue that affection-images seem to activate our mirror (neuron) systems, neural circuits that are activated in both active subjective experience and passive observation of an experience of others.³⁶ This mirroring is beautifully shown in Jean-Luc Godard's *Vivre sa Vie* when Anna Karina, sitting alone in a dark cinema, watches Falconetti's face in Dreyer's *Joan of Arc*, her emotions directly reflecting those of the face on the screen. And both faces in close-up touch us as spectators, in turn.

Mirror-touch is associated with excessively active mirror systems, which seem to play a role in the embodied empathy of affection-images.³⁷ Mirror-touch seems to be a special kind of synaesthesia that mediates not only between self and other in the social world, but also between artworks and spectators—mirror-touch is linked with empathy via a physiological process of simulation. In the collection of interviews with mirror-touch synaesthetes gathered by the editor of this volume, many synaesthetes report that they are able to pick up the deep dimension of what others are feeling,³⁸ mirroring emotions on the level of the 'fourth dimension' that Eisenstein referred to in his theoretical reflections on synaesthesia in art. It seems that the 'orchestration of the senses' enfolds and unfolds this deeper emotional level that could be considered a complex synthesis of all other synaesthetic sense-events because it concerns the 'feeling of the shot as a whole'. One synaesthete even speaks of an 'orchestration of emotions' that can be picked up on different levels: 'The emotions of another person are like an orchestral piece, where there is a general key, and mood to the piece at a moment in time, but there are so many emotional layers. (. . .) I feel all of this'.³⁹ What



Vivre Sa Vie (Godard).

is even more remarkable is that the interviewee adds that he cannot feel the same depth and dimensions of his own emotions, except when he hears himself on recorded playback. Mediation, at least in this instance, seems to be key in experiencing the depths of the fourth dimension. This mediation can be another person, or an aesthetic experience, an audio-recording, a film, an artwork—the other as artwork, art as the other.

In other cases, some form of mediation to create distance from the self, and self-other empathic blurring, seems to be important for a full mirror-touch synaesthetic experience that is not too overwhelming. Most mirror-touch interviewees report on different methods they use to create distance and mediation, sometimes as an active strategy (for instance, stroking the velvet of a movie-house chair to dampen the pain sensations of seeing a horse getting injured),⁴⁰ sometimes as an effect of cognitive framing (for instance, the framing of gruesome scenes of body horror as generic conventions of fantastical fiction makes them more bearable),⁴¹ or by acknowledging that the body in pain that is seen is only a dummy, knowing that blood is just fake blood.⁴² Mirror-touch and mirror systems do not function independently of other neuronal circuits, cultural framings, and artistic conventions.⁴³ Empathy with the other is never complete—or only in very problematic (pathological) ways. Some critics even argue that mirror systems and mirror-touch do not play a role at all in empathy or argue that the emphasis on embodiment and physiological dimensions is overrated.⁴⁴ However, as the qualitative accounts, neuroscientific investigations, and artistic explorations that are presented in this book suggest, it is more justifiable to argue that mirror systems and mirror-touch communicate with more cognitive circuits in the brain and with cultural knowledge and framing in dynamic and variegated ways.⁴⁵

This is also a point made by Eisenstein in respect to art. While he believed that the magic of art depended on the synaesthetic ways in which the senses orchestrate to reach the fourth dimension of the feeling of the artwork as a whole and while he was very invested in finding the physiological basis of any kind of artistic and lived experience, at the same time, Eisenstein was very conscious of a spectator's subjective memories as well as the cultural, historical, and cognitive framings that operate alongside these effects. His collaborations with Luria, the neuroscientist, and Vygotsky, the sociologist/cultural psychologist, were based on this dual framing of bio-cultural processes that are always operative in various combinations. He even called this the *Grundproblem* (central problem) of art (and perhaps of human experience). As cultural and film theorist Julia Vassilieva

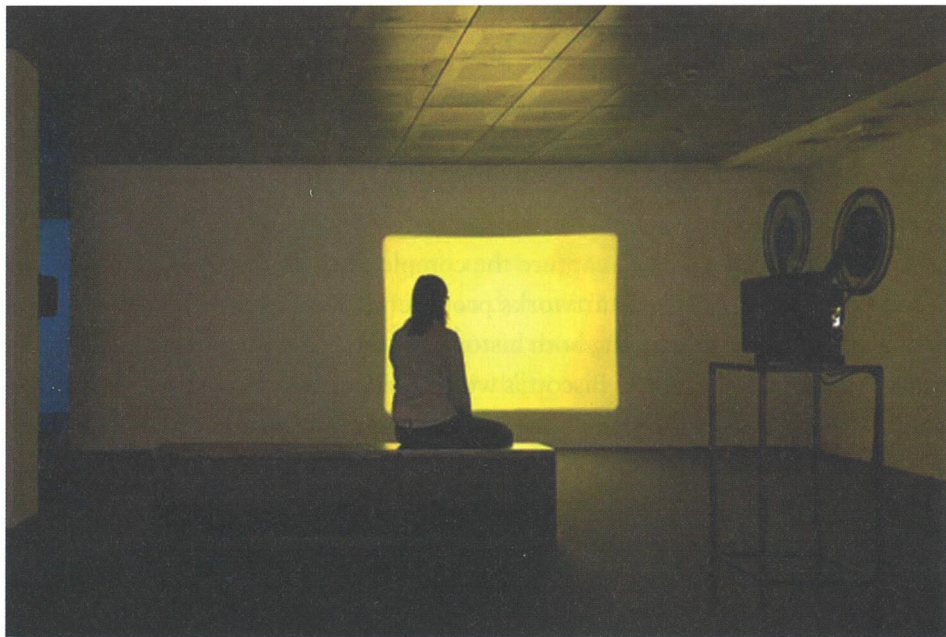
explains: 'Eisenstein construed this [*Grundproblem*] as arising from the paradoxical coexistence of two dimensions in the work of art: logical and sensuous, cognitive and emotional, rational and irrational, conscious and unconscious'.⁴⁶ These two dimensions (what we cognitively know or can imagine and what we physiologically feel) are not mutually exclusive but coexist and influence one another by way of dampening, neutralising, confirming, contradicting, or intensifying the (syn)aesthetic experience as a whole. In their collaboration, which aimed at a holistic understanding of experience, Eisenstein, Vygotsky, and Luria seemed to anticipate many of the current transdisciplinary debates on empathy and the particular ways in which art can engage us as spectators.

Orchestrations of Yellow

In the exhibition *For the Mnemonist S.* (2014), the artist Rosella Biscotti continues in a new way the legacies of this transdisciplinary approach. Like Eisenstein collaborating with Luria and Vygotsky, Biscotti brings together aesthetic, scientific, and social/political aspects of life in different works that resonate in the space of an exhibition. Focusing on the complex interweaving between history and memory, Biscotti pays homage to Luria's vision that the scientific should not be 'merely pure descriptions of separate facts' but that it must 'view an event from as many perspectives as possible'.⁴⁷ As indicated earlier, Luria, as a scientist, just like Eisenstein, as an artist, did not want to reduce reality and experience to abstract general laws, but to capture the complexity of 'living reality'.

In a similar vein, Biscotti's artworks propose very specific and layered slices of 'living experience', questioning both history and memory in her particular orchestration of the senses. Some of Biscotti's works remember and re-embodiment historical political events or situations.⁴⁸ Other works focus on traumatic memory, evoking a resonance between art and science. *Yellow Movie* (2010) is a monochrome film that is composed by means of the 'Desmet Method', after its Belgian inventor, the film archivist and restorer Noël Desmet.⁴⁹ Biscotti exposed the 16mm film material in different degrees to filtered light inside the laboratory, which gives different colour intensities. The spectator experiences these different degrees of yellowness that gives visual depth and vigour to accompanying voices and words. The film is an affection-image in the sense that Deleuze argued that colour is affect itself because of its absorbent characteristics, 'the virtual conjunction of all the objects

which it picks up'.⁵⁰ In Biscotti's work, the objects are the voices and words we hear bathed in yellowness. The colour field is picked up in an embodied empathy with the image, a 'becoming-yellow'. But this experience is intensified and enriched with the content of the audio part of the installation that is composed of recordings of psychoanalytic sessions conducted in the 1980s wherein the patient was given the 'truth serum' Pentothal.⁵¹ Personal memories of the patient and collective memories of the Second World War merge in a strange form between fact and fiction and mingle with the intensities of the different shades of yellow, transporting the spectator to a fourth dimension of empathy, aesthetic experience, history, and memory. Contrasting image and sound, the abstract and the concrete, the conscious and the unconscious, *Yellow Movie* integrates the spectator in a way that speaks to the orchestration of the senses akin to Eisenstein and to the levels of emotion experienced in mirror-touch. *Yellow Movie* addresses carefully layers of both emotion and cognition, inviting the spectator into an empathic relation to the collective and personal layers of the past.⁵²



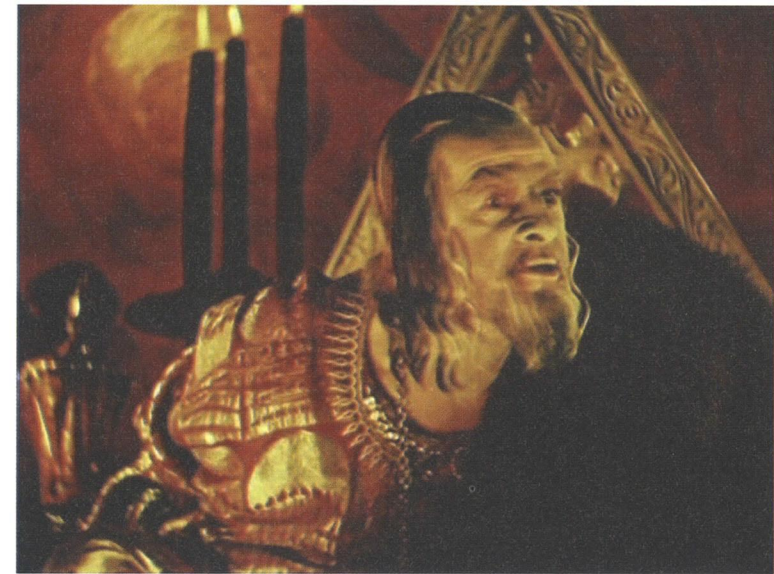
Rossella Biscotti, *Yellow Movie*, 2010 16mm film, optical sound, 22', subtitles in Italian edition of 4 + 2 A/P installation view: Galleria Civica di Trento, Trento (IT), 2010. Photo: Hugo Munoz. Courtesy Wilfried Lentz Rotterdam © Rossella Biscotti.

A similar strategy is employed by the English artist and writer John Akomfrah. Akomfrah does not directly address any scientific discourse, but he composes and orchestrates a complex and holistic experience that can touch the spectator deeply and on many levels at the same time. *The Nine Muses* (2010) is Akomfrah's retelling of the history of African and Asian migration to England, using previously unseen British archival material, edited in a powerful montage with more abstract poetic images of anonymous figures in a yellow (or sometimes blue or black) coat in a snow-covered Alaska landscape. These 'coloured figures' give an affective abstract quality to the images that makes the particular historical references directly accessible to a much wider context of migration and journeying. The audio track adds other layers containing voices from audiobooks, texts, and poems by James Joyce, Dylan Thomas, and Emily Dickinson, amongst others, and with music and song by Paul Robeson and Leontyne Pices. Akomfrah literally unfolds the archive, retrieving and bringing back to life from the mnemonic depths of our mediated and recorded past countless anonymous figures. Juxtaposed to the yellow figures in the snow, and connected to poetry and music, all these unknown men, women, and children, working, driving, walking, dancing, and dwelling onscreen, become aesthetic figures on their own terms. By way of Akomfrah's orchestration of the senses, they transcend the particularities of the historical circumstances, while at the same time these circumstances are important to know and to deepen the understanding of the affects/effects of migration. In *The Nine Muses*, the monochromatic yellow of the coat is an affective aesthetic sign, signalling our attention, moving us in the elegy of the long journeys of migration, showing the dignity of the lives of the anonymous people on screen, briefly recovered, synaesthetically remembered in a 'layered, immersive, lyrical, densely woven film tapestry that profoundly moves'.⁵³ Just as in Akomfrah's installation for Stuart Hall, *The Unfinished Conversation* (2012), the layers of personal and collective history, private memories, poetry, literature, and music, alongside the sparse and poetic use of colours, draw us into this artistically mediated, remembered world. Sitting in front of these works, immersed in the colours, forms, sounds, and layers of meaning, we become mirror-touch synaesthetes that can grasp Eisenstein's *Grundproblem*. The artwork extends the invitation to be touched by an involuntary synaesthetic orchestration of the senses, but also to feel and understand layers of pain and recall or, recover for the first time, layers of history into consciousness.



The Nine Muses (Akomfrah). © UK Film Council, Smoking Dogs Films 2010.

When Eisenstein posited that the fourth dimension, the ‘feeling of the whole shot’, could be reached in a synaesthetic orchestration of the senses, he described something akin to the newly ‘discovered’ form of synaesthesia that is our concern in this volume. Mirror-touch is not only a neurological phenomenon nor is it a simple affective merging with the other, or with an artwork, even though that is part of what happens. Rather, mirror-touch works in combination with all kind of cognitive and cultural framings that can dampen or intensify, contradict or confirm, embodied empathy. As such, the understanding of the complexity of the world in which cinema and art function today has a lot to learn from renewed transdisciplinary collaborations, picking up on the discontinuous legacies of Vygotsky, Luria, and Eisenstein.



Ivan the Terrible, Part II (Eisenstein). Reproduced with permission of FSUE Mosfilm Cinema Concern.

Endnotes

1. Alexander Luria, 'The Mind of a Mnemonist', trans. Lynn Solotaroff (Cambridge, MA and London: Harvard University Press, 1987), 11.
2. Luria, 'The Mind of a Mnemonist', 95.
3. Luria, 'The Mind of a Mnemonist', 22.
4. Luria, 'The Mind of a Mnemonist', 24.
5. Sergei Eisenstein, 'The Film Sense', trans. Jay Leyda (San Diego, New York, and London: Harcourt Brace & Company, 1947), 149.
6. Julia Vassilieva, 'Eisenstein/Vygotsky/Luria's Project: cinematic thinking and the integrative science of mind and brain', *Screening the Past* (2013), 38, 1.
7. See Julia Vassilieva, 'Eisenstein and his method: recent publications in Russian', *Senses of Cinema* (2006), 69, 1–5.
8. Vassilieva, 'Eisenstein/Vygotsky/Luria's Project', 5.
9. See, for instance, John Protevi, 'One More Next Step: Deleuze and Brain, Body and Affect in Contemporary Cognitive Science', in Rosi Braidotti and Patricia Pisters, eds., *Revisiting Normativity with Deleuze* (London and New York: Bloomsbury, 2012), 25–36. See also Antonio Damasio, 'Looking for Spinoza: Joy, Sorrow and the Feeling Brain' (Orlando: Harcourt, 2003).
10. Eisenstein, 'The Film Sense', 71. Emphasis in original.
11. Vassilieva, 'Eisenstein/Vygotsky/Luria's Project', 12.
12. Antonio Damasio, for instance, makes the distinction between emotions (immediately embodied, instinctive, unconscious, not 'owned') and feelings (more cognitively processed, 'owned'). Emotions and feelings are not separate but form feedback circuits that can enhance or dampen affective engagements. See Damasio, 'Looking for Spinoza', 80. Vittorio Gallese addresses the primordial sensory stage in relation to mirror neurons, those neurons that start firing not only when we experience something ourselves, but also when we see somebody else experiencing something. Vittorio Gallese, 'The shared manifold hypothesis: from mirror neurons to empathy', *Journal of Consciousness Studies* (2001), 8, 5–7, 33–50.
13. See also Pisters, 'The Neuro-Image: A Deleuzian Film-Philosophy of Digital Screen Culture' (Stanford: Stanford University Press, 2012). In this book, I argue that contemporary cinema gives us direct access to the brain spaces and mental landscapes of its characters, and hence addresses us as 'neuronal men'. But this does not mean that we have become our brain. In line with 4EA cognitive neuroscience and contemporary new materialist strands in philosophy, the neuro-image shows us how affective, how embodied and embedded in the world and related to the other we are.
- See for the way in which the complex interrelations between emotions and feelings are addressed in the passages on 'the neurothriller', 110–16.
14. Eisenstein, 'The Film Sense', 75.
15. Eisenstein, 'The Film Sense', 75.
16. Eisenstein, 'The Film Sense', 77.
17. Eisenstein, 'The Film Sense', 85.
18. Sergei Eisenstein, 'Film Form: Essays in Film Theory', trans. Jay Leyda (San Diego, New York, and London: Harcourt Brace & Company, 1948), 38.
19. Eisenstein, 'The Film Sense', 117. See also N. Cook, 'Analysing Musical Multimedia' (Oxford: Clarendon Press, 1998), 49–51.
20. Eisenstein, 'The Film Sense', 127.
21. Eisenstein, 'The Film Sense', 133.
22. Eisenstein, 'The Film Sense', 140.
23. Eisenstein, 'The Film Sense', 141.
24. Eisenstein, 'The Film Sense', 141.
25. Eisenstein, 'The Film Sense', 90–1.
26. Eisenstein, 'The Film Sense', 146. See also Jamie Ward, 'The Frog Who Croaked Blue: Synaesthesia and the Mixing of the Senses' (London and New York: Routledge, 2008), 1–26 and 73–81; and Julia Simner *et al.*, 'Non-random associations of graphemes to colours in synaesthetic and non-synaesthetic populations', *Cognitive Neuropsychology* (2005), 22(8), 1069–85.
27. Eisenstein, 'The Film Sense', 149.
28. Eisenstein, 'The Film Sense', 151.
29. Michael Banissy and Jamie Ward, 'Mirror-touch synaesthesia is linked with empathy', *Nature Neuroscience* (2007), 10(7), 815.
30. Eisenstein, 'Film Form', 67.
31. In the catalogue to her exhibition *Sensorium Tests*, Daria Martin quotes Eisenstein reflecting on Japanese Kabuki, another beautiful example of an experience of this primordial fourth dimension: 'Occasionally (and usually at the moment when the nerves seem about to burst from tension) the Japanese double their effects. With their mastery of the equivalents of visual and aural images, they suddenly *give both*, "squaring" them, and brilliantly calculating the blow of their sensual billiard-cue on the spectator's cerebral target. I know no better way to describe that combination, of the moving hand of Ichikawa Ennosuke as he commits *hara-kari* – *with* the sobbing sound offstage, graphically corresponding with the movement of the knife (...) and we stand benumbed before such a perfection of – montage'. Quoted in Daria Martin, *Sensorium Tests* (Milton Keynes: MK Gallery, 2012), 139.
32. Gilles Deleuze, 'Cinema 1: The Movement-Image', trans. Hugh Tomlinson and Barbara Habberjam (London: The Athlone Press, 1986), 87–8.
33. Deleuze, 'Cinema 1', 91.
34. Deleuze, 'Cinema 1', 97.
35. Deleuze, 'Cinema 1', 87–122. See also Patricia Pisters, 'The Neuro-Image', 28–33.
36. Michael Banissy and Jamie Ward, 'Mirror-Touch Synaesthesia is linked with Empathy', 815.
37. Michael Banissy and Jamie Ward, 'Mirror-Touch Synaesthesia is linked with Empathy', 815.
38. Daria Martin, Interview with Anonymous, a mirror-touch synaesthete, 15 October 2012.
39. Martin, Interview with Anonymous, a mirror-touch synaesthete, 2012.
40. Martin, Interview with Anonymous, a mirror-touch synaesthete, 23 October 2013.
41. Elinor Cleghorn, Interview with Anonymous, a mirror-touch synaesthete.

42. Henning Holle, *et al.*, “‘That is not a real body’: identifying stimulus qualities that modulate synaesthetic experiences of touch”, *Consciousness and Cognition* (2011), no. 20, 725. In the interviews conducted with mirror-touch synaesthetes by Martin, a similar observation was made by one of the interviewees (in interview 5). Seeing a dark spot on a friend’s foot, the interviewee reports: ‘My first visual sense was that he was bruised, but once I realised it was hair, there were no more synesthetic feelings. My synaesthesia had been tricked; in the same way it might be tricked on Halloween by someone with fake blood on them.’
43. Raz, Gal, *et al.*, ‘Cry for her or cry with her: context-dependent dissociation of two modes of cinematic empathy reflected in network cohesion dynamics’, *Social Cognitive and Affective Neuroscience* (2013), 1–9.
44. See, for instance, Ruth Leys, “‘Both of us disgusted in my insula’: mirror neuron theory and emotional empathy”, *Nonsite.org* (2013), issue 5, 1–25; and Jan Slaby, ‘Against Empathy: Critical Theory and the Social Brain’. Slaby rejects mirror neurons as ‘neuronal wifi’ and proposes the concept of agency as a concept for empathy.
45. See also Patricia Pisters, ‘Dexter’s plastic brain: mentalizing and mirroring in cinematic empathy’, *Cinema & Cie*, Special Issue Neurofilmology (2014), in press.
46. Vassilieva, ‘Eisenstein/Vygotsky/Luria’s Project’, 6.
47. Alexander Luria, ‘*The Mind of a Mnemonist*’, trans. Lynn Solotaroff (Harvard University Press, 1987), xv.
48. ‘*The Trial*’ (2010–14), for instance, re-embodies in an even changing performance and installation the 1979 trial of Italian philosophers such as Toni Negri and Paolo Virno for being responsible for shaping the minds of young students who later took up arms and engaged in political action. *I dreamt that you changed into a cat . . . gatto . . . ha ha ha* (2013) is the result of a workshop Biscotti conducted with 14 inmates of a women’s prison, exchanging memories of their dreams.
49. See Simon Brown, Sarah Street, Liz Watkins, eds., ‘*Color and the Moving Image: History, Theory, Aesthetics, Archive*’ (New York and London: Routledge, 2013), 222–3.
50. Deleuze, ‘*Cinema 1: The Movement-Image*’, 118.
51. The sessions were conducted between 1987 and 1991 in The Netherlands. The patient was Dik de Boef. The psychiatrist was Prof Dr Jan Bastiaans, who was famous for his controversial methods of war trauma treatment using Pentothal and LSD.
52. Moreover, two additional works remind us of other aspects connected to this constellation of aesthetic/scientific/living experience. ‘*Pharmaceutical Dreams*’ (2010) shows advertisements for Pentothal in the form of exotic postcards. And 168 Sections of a Human Brain is an installation with silver gelatin photographs, reproductions of one of the first photos of sections of the human brain by G. Jelgersma at the University of Leiden (1908–1911) to create a scientific tool for psychoanalysis, especially for memory retrieval. With this installation, Biscotti exhibits a well-read copy of Luria’s ‘*The Mind of a Mnemonist*’. See also Flora Lysen, ‘De meetbaarheid van een hersenspinsel’ in *Metropolis M*, no. 5 okt/nov 2014.
53. Kieron Corless, Review of ‘*The Nine Muses, Sight & Sound*’, February 2012.