

The Cinema and X-Rays

In the late nineteenth and early twentieth century a technology akin to the cinema, that presented itself as the materialisation of occult powers was the X-Ray. The association between the cinema and Röntgen's enchanting discovery was frequently remarked upon in the cinema's early years. With the development of the X-Ray arose the fantasy of a human being possessing an enhanced vision that could penetrate barriers – of a person with X-Ray eyes, as the movie title has it. Consider some early films: George Albert Smith's *The X-ray Fiend* (1897, G.A.S. Films, U.K) shows the skeletons of two lovers embracing, as they are revealed by a professor's X-ray machine; Méliès *Les Rayons Röntgen (A Novice at X-rays)* associated magic and X-rays (a scientist uses an X-ray machine to extract a patient's skeleton that leaps out of the man's body while his flesh slumps to the floor); *Le Monstre (The Monster, 1903)*, also by Méliès, showed an Egyptian pharaoh performing magical tricks with his wife's skeleton, an image to which X-Rays had given special significance; Emile Cohl's *Les Lunettes Féerique* (which translates as "the enchanted spectacles") shows a family gathering, with each person putting on X-ray spectacles that reveal whatever passes through the wearer; and *A Spider in the Brain* (1912/Italia) show X-Rays being used to locate a large spider that has burrowed its way into a person's brain. Both Stanislaw Prysbyzewsky and Maxim Gorkij imagined that X-rays made it possible to see the soul – to actually see thought. Stanislaw Prybyszewsk wrote

They were sitting face to face. They were looking into each other's eyes and were totally alien and indifferent toward each other. Yet, a beam of light dwelt in his eyes, something similar to Röntgen's rays: he could see through her and through himself, he could see something emanating from inside their souls, he could see their hidden *selves* coming closer to each other and looking at each other with so much curiosity and desire.

And, in a pseudonymously published essay concerning X-Rays, Gorkij wrote

Imagine that someone wants to know you better.

He takes a picture of your skull, and if this skull contained some thoughts, the negative will reveal them as black blots, or snakelike spirals, or some other unattractive form.

If he wishes, he can try to photograph your conscience, and the negative will also show all the excrescences and blots.

In a word, every person will be seen through now, and however thick and impenetrable your skin might be, the new light makes it transparent like glass.

The occult nature of the X-Rays was argued by the theosophist leaders Helena Blavatsky and Annie Besant.

Among the more significant of late discoveries has been that of the Roentgen or X-rays, vibrations in the ether which pass through matter hitherto regarded as opaque, and, for instance, enable a photograph to be taken of the skeleton within a living body, or of a bullet imbedded in an internal organ. These vibrations are alleged to be seventy-five times smaller than the smallest light vibrations, and thus can pass through matter impermeable to light and heat. Now eight years before the X-rays were discovered *The Secret Doctrine* was published, and in

that Mme. Blavatsky remarked: "Matter has extension, colour, motion (molecular motion), taste and smell, corresponding to the existing senses of man, and the next characteristic it develops – let us call it for the moment 'Permeability' – will correspond to the next sense of man, which we may call 'normal clairvoyance.' . . . A partial familiarity with the characteristic of matter – permeability – which should be developed concurrently with the sixth sense, may be expected to develop at the proper period in this Round. But with the next Element added to our resources in the next Round, Permeability will become so manifest a characteristic of matter that the densest forms of this Round will seem to man's perceptions as obstructive to him as a thick fog, and no more." The fulfilment of the latter part of this quotation lies in the future, but the earlier part is now verified, for the discovery of the X-rays has completed a singular chain. ("Ancient and Modern Science": From the *Theosophical Review*, September, 1900. Reprinted in Annie Besant, *Evolution and Occultism Essays and Addresses* Vol. III, Madras: The Theosophist Office, 1913)

She continues the text by arguing that X-Rays simply embody a power that some special individuals have long since possessed – they are, then, the technological embodiment of human capacity:

Not long ago, a little boy in America saw the bones of his father's hand through the covering flesh, and medical observations established the fact that he "saw by the X-rays," or, to use our own phrase, was "physically clairvoyant." Other people here and there show this faculty, born with them, "variations" pointing to a line of evolution. Under hypnotic conditions many persons show this same power, and "hypnotic lucidity" is a well-established fact. Others become clairvoyant by practice. Surely when these facts are set side by side: etheric vibrations by which certain objects may be seen through opaque matter; occasional instances of people born with a power to receive and respond to those vibrations; many people able to receive and respond to them when shut off from the vibrations they normally respond to; artificial development of the power to receive to and respond to them; we have definite signs of the evolution of a new sense and sense-organ. The sense-organ is rudimentary in the normal person, is at least partially developed in the born clairvoyant, is susceptible of stimulation in most people when the developed senses are temporarily silenced, and may have its development forced by special means. Here the positive declaration of Ancient Science, based on innumerable experiences, is in way of verification by the discoveries of Modern Science.

A few years after Annie Besant composed this text, indeed around the time that Ejzenštejn was working on *The Glass House*, German thinkers Ernst Bloch, in "The Anxiety of the Engineer" and Eugen Diesel, in "The Uncanny of the Technical Age" (both dating from 1929), explored the belief that technology is a modern manifestation of the marvellous. Bloch compared television's "latest technology" with the "realms of the magic mirror." Diesel, a son of the famous inventor, was more effusive: "that which was hitherto seen only in dreams or which belonged to the realm of the miraculous, is now available in everyday experience." Diesel alluded obliquely to Sigmund Freud's essay from 1919, when he defined the uncanny as "a sudden, ghostly appearance." Diesel identified a "mechanical uncanny" that arises "directly from the machine in itself," and characterised it as "uncanny 'of the second kind,' . . . dissolving old measures of time and space." Diesel proclaimed "a whole new artificial world" was coming into being, a world "in which

nothing could be certain” because material reality appeared only as a ghostly phantom on the screen or in magic mirror in the living room. He thus gave voice to that widespread modern anxiety: that the real has become phantasmal, and the phantasmal has become reality itself. The ontological status of cinematic representations has been taken to define the ontological status of real entities.

X-Rays make thought visible (that is, they reveal, and so transmit, thoughts); the cinema is the sister of X-Rays; therefore the cinema too can transmit thought. This suppressed deduction helped shape the Soviet filmmakers’ ideas about montage. The cinema is an occult tool: the technology of cinema, they believed, allowed the marvel of telepathic communication to become an everyday reality. That the cinema is a technology for conveying thoughts had a role in shaping the Soviet filmmakers’ ideas about film montage (as Ejzenštejn’s preliminary notes for a film on Dreiser’s *American Tragedy* makes evident): montage construction shapes the cinema into the mimesis of human thought – it puts the shape of thinking on display. Projecting a montage film thus transmits thoughts to its viewers. But, beyond its general influence on the idea of montage, the idea that the cinema is the sister of X-rays might well have had the more concrete result that Yuri Tsivian points out: Ejzenštejn’s film *Stachka* (1924) offers a sequence in which the faces of police spies dissolve into the faces of animals – in a conversation with Alexander Belenson, Ejzenštejn explained that he liked the technique of dissolves when he made *Stachka* because of their ability to “bare the essence of things.” We know that the idea that every person is associated with a particular animal (that suggests the person’s character) is common in pagan thought.

The X-Ray was thought of as a machine that could render not only the mind, but also matter, transparent. In its intrusive immodesty, which made privacy obsolete, the X-ray was akin to the cinema. Such were the ideas that impelled Ejzenštejn to undertake *Stekliannyi Dom* (*The Glass House*), a project he worked on after filming *Bronenosets Potyomkin*. Between 1926 and 1930, he developed a script for the proposed film – and it was based on the notion that the cinema and X-Rays are kin. The treatment for the film dealt with the familiar themes of art in the era of modernity: mimesis versus abstraction, statics versus dynamics, and visual perception in the era of mechanical “vision.” (Ejzenštejn worked on the film primarily during his ill-fated American sojourn, though he conceived of it in Berlin in 1926, after talking to Fritz Lang and Thea von Harbou, Lang’s wife and the script writer on the film, about *Metropolis*); he intended the film to be an avant-garde parody of American living. The action of *Stekliannyi Dom* would be set in a multi-storeyed building made entirely of glass – glass walls, glass ceilings, glass floors, glass windows. Glassy surfaces are one of the features of the modern world, and Ejzenstein was about to push this modernity – this American modernity – to its limits. He wanted to abolish the sensation of hardness and weight (the modern world is the phantasmal world of weightless images, of spectres, of X-Rays), to blur the distinctions between the inside and the outside (as X-Rays and, in a way, close-ups had done). He wanted light to dissolve the materiality of glass (as so to carry to its conclusion what building with glass had initiated). Transparency has become a modern ideal – or, rather, modern cultures whose modernity engendered a yearning to revert to archaic ways of living took transparency as an ideal. The lack of a distinction between the private and the public spheres and a sort of moral exhibitionism are common characteristics of communal societies, and will be characteristic of the better society to come. Ejzenštejn’s idea for the film developed out of, and was partly a critique of, utopian claims for the glass façade (and of glass architecture). Bruno Taut (1880-1938) and the European Constructivists, Le Corbusier (1887-1965) and Mart Stam (1899-1986) advanced (and which their work exemplified). Taut’s group, “Die gläserne Kette” (“The Glass Chain”), had proposed that glass cathedrals would allow people to experience the cosmic play of nature, while the Constructivists had believed that glass walls could expose the reality of social structures and thus contribute to their amelioration (as the science of hygienics had shown the relation

between poor architectural design and the spread of infectious diseases and that established the health benefits of interiors filled with sunshine). Ejzenštejn's view was somewhat less sanguine: his glass walls isolated people, even while it left them exposed. Glass walls did nothing to make the social order more harmonious: rather it left people exposed and open to exploitations – and so angered those living within them that they destroyed their exposed visual spaces.

Ejzenštejn's earliest ideas for the film were for a quasi-abstract work: the elevator and the camera would be the principal protagonists – the elevator would stand for the camera's material eye, roaming the building's various floors. While many of the building's inhabitants would be "blind" – for some of the inhabitants would have been invisible to others (so, for example, a husband would have been unable to see his wife's lover or the well-fed could not see the starving) – the camera was all-seeing. Ejzenštejn's described the impression he hoped the building would give.

The transparent building should look like a person under Roentgen rays. The sole opaque object in the glass house, the elevator (a black iron box with lights like gloomy all-seeing eyes) looks like a backbone or a key in the pocket [of this X-rayed figure].

Vision, and the possibility of seeing from different angles, was the prerogative of the mechanical eye. Thus, the mobile camera ironizes vision. Ejzenštejn, accordingly, characterized the genre to which *Stekliannyi Dom* would belong as 'the comedy of the eye.' But it was strange comedy (in keeping with Ejzenštejn's well-documented sadist tendencies): the ultimate violations of privacy are visited on the inhabitants. (Ejzenštejn was in considerable duress during the period he worked on the script and, while engaged in this work, he consulted Charlie Chaplin's psychiatrist, Dr. Reynolds). This interest in perpetrating violence against his actors prompted Ejzenštejn's to plan to juxtapose clothed with nude actors and mechanical instruments with human flesh. "The mechanical man sent to rape the nudiste girls. The nudiste chief succumbes [sic] with the tailor's daughter." Ejzenštejn even claimed the project was to be about "graduation in nudity." Ejzenštejn treated the end of privacy as largely, but not wholly, negative, for the demise of privacy also marks the advent of communal spirit, for which nudity serves as a metaphor:

L'Idéaliste "en Jesus-Christ".

Looks like [the poet] Nadson. But blond and wearing horn-rimmed spectacles. Cloven little beard. His "enlightenment" [*prozrenie*]. He preaches. [As he does so], his luxuriously clad audience becomes naked. Gradually. "Bare your souls." A transitional stage is particularly good, when all that is left on gentlemen are starched ruffs. Nothing except adornments on the ladies. A transition from *recueillement religieux* to erotic curiosity. . . . Of course, all this [should be treated as] *symbolique*, [in the same manner] as the transparency of the walls in the house.

Whence do these "nudiste" ideas arise? Partly it is in strange fascination with sexuality that emerged among the avant-garde around 1906, and especially among the Decadents. The writings of Artsybashev, Kuzmen, and Zinoveva-Annibal all show the sinister curiosity that avant-garde writers had for the dark side of life and its relation to sexuality. Aleksandr Kuprin's *Iama* (*The Pit*), published in two parts in 1909 and 1914, is another work that displayed the same fascination. Kuprin based his novel on a painstaking study of police reports and public health records; it depicted what life must have been like for the sexual slaves of the time and how "the life" drew prostitutes down into the pit. Before World War I, Moscow had a "Suicide

Club” that exploited an erotic fascination with death; some reports claim, there was a Temple to Eros in St. Petersburg where men, women and children engaged in sexual rites. Russia’s decadent aristocrats developed a vogue for necrophilia and much society gossip concerned Prince Feliks Iusupov’s transvestite exploits.

Nikolaj Fedorov’s Cosmicism

A more important source for Ejzenštejn’s “nudiste” ideas can be found in the strange and wondrous “cosmicism” of Nikolaj Fedorov (1828-1903). Fedorov was a curious figure who worked in the library of Rumiantsev Museum, and was reputed to be familiar with the contents of every one of its holdings. Perhaps because he was the bastard child of an aristocratic father and a neighbour woman, he was predisposed towards asceticism – he lived in a closet-sized room at the back of the museum (housed in the Pashkov Dom, or Pashkov’s Mansion, one of the most beautiful Renaissance-style buildings in Moscow), slept on a humpback trunk, wore the same clothes winter and summer, refused all promotions, and gave away most of his meagre salary to the poor. He was also among the most erudite people of his generation, and attracted an extraordinarily talented group of people to him – among them Fedor Dostoevsky, Lev Tolstoy and Vladimir Soloviev. His position as the librarian of one of the more important Russian cultural institutions allowed Fedorov to be in contact with the most important Russian intellectuals of his time: the revolutionary social democrats, Socialists and, finally, the Bolsheviks (especially Aleksandr Bogdanov, 1873-1928 and Anatolij Vasil’evič Lunačarskij, 1875-1933) who saw in Fedorov’s “Plan” for transforming the world as simply another term for World-wide Revolution and identified Fedorov’s Absolute Cosmic Life with communist society.

Fedorov published no books in his lifetime – he was referred to fondly as “Moscow’s Socrates” because of his resolve to publish almost nothing, preferring, due to their nature, that his ideas be spread orally, amongst the devout people of his inner circle. After his death, however, two disciples, N. P. Peterson and V. A. Kozhevnikov published a two-volume edition of discourses he had dictated, with the title *Filosofia obshchago dela* (*Philosophy of the Common Task*). The book was printed in an edition of 480, every one of them stamped “not for sale,” and placed in institutional libraries and the libraries of anyone who requested them.

Fedorov’s thought was eclectic and far-ranging; however it was ultimately dominated by a single theme: the annihilation of death. He proposed that the common task of humanity was to overcome death, and that this goal would be achieved by collecting the dispersed atoms of the dead and reassembling them (a process that would be guided by the loving recollection of the departed). Fedorov also believed that technological advances would serve soteriological ends; hence, he advocated colonizing space (to accommodate the increase in population that would occur when the dead were raised), harnessing solar energy, regulating climate, and irrigating Arabia with icebergs brought down from the Arctic. (He proposed to explode mountains of the Pamir to open a southward route from the tundra, so that the people of the region could bring ice down from northern regions, melt it, and turn the immense Arabian desert into fertile earth. He even calculated how much dynamite would be required to achieve this.) Fedorov also foresaw the technological reproduction and remaking of the human body, through cloning and the use of prosthetic organs.

The idea for which Fedorov is best known is that of the immanent universal resurrection, which, in Gnostic fashion, he averred would be brought about through human effort – the resurrection, he insisted, would be carried out by scientific means and through physical processes. Fedorov proposed that a future time would experience the resurrection of the bodies of the forefathers – the bodies of the departed will be rescued from their graves and reunited with their spirits that roam the cosmos. All humanity will have to participate in this Supreme Action, the effort to bring about the universal resurrection. Fedorov plumped for the unstinting

allocation of resources to carry out this ultimate task, by arguing that technology had made universal salvation possible. The issue of universal salvation had been a thorny one in the Orthodox Church, as in most other Christian denominations. Matthew (25:31) predicts a Last Judgment which will discriminate between those who are saved and others, for he predicts that at the Last Judgment, God “will separate people into two groups as the shepherd separates the sheep from the goats.” On the other hand, fundamental to Christian teaching is the proposition that forgiveness must be universal. Will the judgment at the end of time extend forgiveness to all, or will it distinguish the saved from the damned? The official doctrine of the Orthodox church is that the later will be case; but since Patristic times some thinkers (e.g., Origen and Gregory of Nyssa) have maintained that the former possibility might be realized. Nikolaj Fedorov (and Vladimir Soloviev) insisted that universal salvation was the only alternative, that it would be contrary to God’s plan for humankind to save only a select group, Fedorov’s Cosmicism depicts the universe as unfolding in an evolutionary process, from matter, through consciousness, to perfect self-consciousness – a perfect self-consciousness that will hold all in its embrace. Thus, in one key respect Fedorov’s notions about the role of human effort in salvation differed from the esoteric doctrines of the Gnostics: Fedorov portrayed the progress of history, as advancing not through the knowledge that particular individuals possess (as the Gnostics believed), but rather through the development of the universal, or cosmic mind. Accordingly, Fedorov maintained that Enlightenment comes by all, through all, and for the sake of all. Thus, humanity should make a Common Cause, *The Philosophy of the Common Cause* proclaimed. The Common Cause is scientific, social, economic, cultural, psychological, spiritual, industrial, cosmic – it is the common struggle against Death and for the Absolute and Infinite Life. Fedorov calls the strategy of this fight “the Plan.”

Fedorov’s Cosmicism was markedly anthropocentric, a feature that linked it with the famous Russian God-builder movement of the early twentieth-century. The anthropocentric roots of Fedorov’s Cosmicism are reflected in his notion of “the new human.” Like so many late nineteenth century cosmologies, Cosmicism proposed an evolutionary conception of reality, but one in which human being played a key role. According to the Cosmicist conception, the human world is a site of transition between the biosphere (the sphere of living matter) and the nōosphere (the sphere of reason), since humans are living matter endowed with reason. Cosmic evolution depends on human beings to reach its goal, which is the perfection of total integration – during the final stages of the evolutionary process all humankind must be united into a single organism, a higher planetary consciousness able to guide further development, an organism capable of guiding and perfecting the universe, of overcoming disease and death, and, finally, of bringing forth an immortal human race. Fedorov believed that aesthetic experience would accomplish these goals.

Fedorov’s stress on the key role that human effort plays in salvation is typical of Gnostic thinking – our striving can carry us beyond the world as it is, and help to bring forth the world as it ought to be. In its ideas about bringing forth the ideal kingdom, Fedorov’s Cosmicism reworks Gnostic ideas of self-perfection and self-deification, including the idea of the resurrection of the dead, which has a long tradition in occult and Gnostic thought.

The idea that science can uncover powerful psychic-cosmic energies, so fundamental to Fedorov’s redemptionist programme, also has gnostic provenance. The Gnostic strain in Fedorov’s thought is also evident in the technologism that characterizes his ideas on transmutation. Soloviev, writing to his “dear teacher,” asked how, if the dead were merely to be reconstituted as they were, they would avoid killing each other, and even devouring each other, in the ideal world to come. In this exchange, Soloviev argued that the intervention of the grace was necessary to free the resurrected humans of their desire to visit harm on one another, while Fedorov, true to his Gnostic principles, rejected any suggestions that a miraculous transformation, effected through grace, was necessary. No spiritual transformation is necessary,

Fedorov argued – aesthetic transformation suffices to effect this change.

The New Body

Fedorov's belief in the aesthetic transformation of humanity led him to consider an issue that would have a large role in art theories in early twentieth-century Russia, that of creating the new bodies that would be suited for the future world. Art, Fedorov argued, lies at the intersection of material and ideal reality, so it is able to transfigure the human body – science will resurrect the bodies of the departed, Fedorov predicted, but art will restructure them. A principal concern of Fedorov is to bring forth a blissful collective organism. To this end, the body's earthly constitution must be fundamentally changed: cosmic nutritional substances will be invented, along with new organs for digestion. Cosmic transmutations of the body will occur that leave behind the body's zoomorphous nature, as it develops vegetative organs. These new vegetative organs will make the body capable of feeding on, and accumulating, the all-pervading cosmic substance, viz., light (just as plants are nourished through photo-synthesis). The flesh body will be converted into a photosynthesising biomass that will flourish in the light and warmth of special greenhouses in outer space. This new body will make sunshine (and light generally) a primary economic resource, that is consumed and reproduced by the new human organism. The worker and the machine which produces the cosmic resource (light) will, in time, fuse in one entity.

Fedorov's ideas on the transformed human being of the future resurrection made possible the wide acceptance, among Russian artists of the early twentieth century, of the conviction that the technologies the historical process would bring forth would ultimately transform the human body, endowing it with increased sensory abilities. That idea appears in the theories of both Dziga Vertov (with their celebration of technology as latest step in the evolution of sensory devices) and Sergei Ejzenštejn (consider the text "Laocoön"), and in the 1913 ballet *Pobeda nad solntsem, Opera (Victory over the Sun: An Opera)* mounted by Burljuk, Matjushin, Malevič & Co. The belief that the human form could be improved, or even perfected, was widespread. Mikhail Vrubel pointed out the need for supplementary limbs and even proposed developing a supplementary body, that would allow one to reach freely in all directions (such would be the make-up of its new wrists); Pavel Filonov (1883-1941) argued that changes in diet could result in greater visual acuity; and Mikhail Matjushin (1866-1934) developed a conception of *Zor-Ved* (see-know), to which his painting and microtonal music were linked. Matjushin was a formidable theorist, and one of the most serious and learned avant-garde artists in the Russia of his time (so he gathered a very interesting group of young artists around him). Matjushin's art theoretical ideas were inspired by Symbolism, Pantheism, Futurism, and Theosophical theories of C.H. Hinton, P.D. Ouspensky and Gurdjieff. He was also a musician, composer, painter and colour theorist who, in 1932, published "Zakonomernost' izmeniaemosti tsvetovykh sochetanii. Spravochnik po tsvetu" ("The Laws Governing the Variability of Colour Combinations: A Reference Book on Colour"), one of the last manifestos from the Russian avant-garde, in an edition of four hundred copies.

In the preface to his *Colour Handbook* Matjushin argued that having a "world-view" is essential to understanding colour concepts; Matjushin termed the fundamental concepts of his "world-view," "Organic Culture" and "Spatial Realism." These had also been the names of the workshops he had supervised as a Bolshevik professor. In those workshop Matjushin, working with his students, developed a training programme, including yoga, meditation and various other pneumatic exercises that would encourage their artistic development. His notions about how these exercises would facilitate their artistic development are fascinating: learning that the common housefly has a very wide radius of sight, while a dog has a very narrow one, brought Matjushin to reflect on the natural variability of optical phenomena, and those reflections led him

to conclude that human beings could expand their optical radius. This expansion was not to be effected simply by improvements to the eye itself, however: Matjushin's *Zor-Ved* system, developed from 1913 onward, maintained there are dormant optical reflexes in the soles of the feet and the back of the head, and that these reflexes could be awakened, allowing one to paint "landscapes from all points of view"; among the exercises that Matjushin proposed to assist in developing these abilities was to practise seeing with each eye separately, to develop a sort of strabismus. Matjushin referred to this sort of seeing as "expanded" or "amplified" vision (recall how the intelligensia had responded to the discovery of X-rays) – "amplified vision" did not include only the eyes, but was expanded to involve hearing, tactility, and thinking: in short, a kind of conscious synaesthesia. Matjushin considered that it was analogous to the expansion of consciousness through yoga, in that it allowed people to see the world as it is revealed through meditation; his ideas about expanded vision may even have been influenced by the yogic belief (which is recorded in Boris Ender's diary from March 1920) that the eyes are only the secondary organ of vision, that the primary organ of vision is a nerve centre, an "internal eye" in the brain. When humans had developed the capacity for circumvision (at which stage of development, their visual apparatus would encompass a panoramic visual angle of 360°), not only would colours present themselves more intensely than they do to the visual apparatus humans at present possess, but humans would experience a new spatial reality, that of the fourth dimension. Matjushin pointed out that to untrained eyes a stone would seem inert, immobile, static, dead; however, seen by the trained eye, as belonging to the fourth dimension, the low frequency waves of solid materials (such as stones and minerals) would become visible – it would become evident that stones and minerals possessed vital energies (though of low frequency). To the untutored eye, cars seem to move at one speed, people at another, and trees to grow at yet a third speed; thus, to the untutored eye, the world appears a disorderly collection of fragments, with no harmony amongst them. To the tutored eye, the eye that had developed the capacity for "amplified vision" the organic unity of the whole world would be evident.

Matjushin believed that evolution would ensure that at some time in the future all humans would possess expanded vision – all people would see in a way that lacked directional references. Thus, Matjushin declared: "*Zor-Ved* signifies a physiological change from former ways of seeing and entails a completely different way of representing the seen. *Zor-Ved* for the first time introduces observations and experiments of the hitherto closed 'back plane,' all that space which remains outside the human sphere because of insufficient experiment." As one might have expected, Matjushin connected abstract art to expanded vision, which he believed revealed the true nature of reality. Matjushin's "Organic Culture" was founded on physiological concepts about human perception and (against Malevič) it favoured the use of curved lines to indicate the organic character of perception; Matjushin's concept of Organic Culture influenced artists such as Nikolai Kulbin, Mikhail Matiushin, and Pavel Filonov.

Despite its occult provenance (in Ouspensky's systematization of the teachings of Gurdjieff) Matjushin's extravagant hypothesis of circumvision was subjected to further investigation, throughout the 1910s and 1920s, by Matjushin's colleagues, Boris, Maria, Xenia and Yuri Ender and Pavel Mansurov, and at the *Rossiskaia Akademia Hudojestvenih Nauk (RAHN)* (*The Russian Academy of Artistic Sciences*) in Moscow and the Petrograd State Free Art-Teaching Studio. What is more, Matjushin's conjectures had parallels in research into colour perception conducted by conventional scientists, Sergij Kravkov and Petr Lazarev and the *Psihofizicheskaia laboratoria* (Psycho-Physical Laboratory) of the *Gosudarstvennaia Akademia Hudojestvennih nauk (GAHN)*, State Academy of Artistic Sciences) in Moscow. Related laboratory work was carried out at the Moscow Centre for the Scientific Organization of Labour (originally a centre for the study of Taylorist ideas), an institute with which both Malevič and Mejerhold were associated.

Matjushin also conducted studies into the interaction of colour and sound. These studies

led him to conclude that through evolution yet to come, the colour-receiving cones of the eye would spread from the centre of the retina towards the periphery, resulting in the improvement of colour perception and the perception of colour movement (since, given the present constitution of the eye, the perception of motion is more acute at the retina's periphery than at its centre). Matjushin's experiments into colour perception used simple, coloured forms that could be moved in a controlled environment (allowing colour, shape and motion to be varied independently); these experiments revealed that sound influences the perception of colour and form: a low, rough noise made a given colour seem darker and redder, while a high, piercing tone made it seem more transparent and more blue. Matjushin and Enders used similar means to study how colour could affect the perception of shape.

This belief led to an interest in the development of consciousness through several stages. The conception of levels of consciousness, of lower and higher forms of nervous activity had been put forward by Gurdieff, Ouspensky, Steiner, Blavatsky, *et. al.* In *Tertium Organum*, P. D. Ouspensky set out four stages in spiritual development, which are marked by an increasing ability to perceive forms in four dimensions, a new feeling of time, a greater appreciation of the reality of the infinite and an expanded sense of the universe as a living organism; even more remarkable, in light of Ejzenštejn's musical analogies, is Ouspensky's assertion that the development of a higher consciousness is evidenced in the development of the sensation of a world harmony. M.V. Lodyzhenskij's popular exposition *Sverkhsoznanie i puti k ego dostizheniiu* (*Superconsciousness and Ways to Achieve It*) explains the methods that practitioners of Raja-Yoga and Christian asceticism used to achieve higher states of consciousness; Lodyzhenskij's claimed that higher consciousness is the product of organic evolutions and that a historic juncture was in the offing, when anthropological development would transform the human faculties of clairvoyance from their present incipient condition into fully developed physical organs. That claim had influence on many Cubo-Futurists, including Matjushin.

Other artists were less patient and less inclined to rely on evolution to produce the changes in human being they longed to see. Their notions about remaking the human body were more revolutionary than evolutionary, and they decided to find ways of redesigning the body that would have immediate results. Thus, in 1912-4, several Cubo-Futurists, including David Burljuk, Goncharova, Larjonov, and Ilja Zdanevich mounted performance art works *avant la lettre*, by painting their faces and bodies with codes, cryptic messages, and ceremonial images of animals and birds, along with Rayonist forms, and parading their decorated bodies through the streets. For their body decorations, they drew on American Aboriginal and African body painting, on Polynesian tincturing, and on Ancient Scythian tattooing – what made the ancient practices attractive was that they were means for contacting divinity. Ilja Zdanevich and Mikhail Larjonov explained their behaviour in a 1913 manifesto, "Pochemu My Rasskrashivayemsja: Manifest Futuristov: ("Why We Paint Ourselves: A Futurist Manifesto") in which they noted their connection with Filippo Marinetti and Umberto Boccioni, and proposed that their body art transformed the body into a hyperaccelerated phenomenon. Remarks that Burljuk, Goncharova, Larjonov (and others) made about the hyperaccelerated body reveal that these thinkers considered the ideal body was a body of energy. The human body of energy could meet with the divine, which is itself a body of energy.

Some thinkers proposed more traditional means. Theosophists taught vegetarianism as a way of purifying the body. Gurdieff advocated developing the body/mind through Haida yoga. Others preached salutary diets as a means of controlling the body, still others advocated physical exercise and endurance tests as means for attaining spiritual revelation. Filonov was impressed with the extreme attention that Arab peasants and Yogis gave to the thorough mastication of food and became greatly concerned with methods that might lead to getting maximum benefit from food. The practices of fasting and gymnastics became common among the vanguard as preparation for the final journey, and so did the practice of vagabonism

(understood as the earthly analogue of the great journey to come) – this was one motivation for Filonov's trip to the Holy Land in 1908, for Xlebnikov's journey's throughout Russia, in Kuznetsov's longing to see the Russian steppes again, for Gurdieff's travels through the Caucasus, and for Petrov-Vodkins bicycle trip to Western Museums.

A key figure in popularizing these ways of thinking about the body was Isadora Duncan, whose Russian tour of 1905 many Symbolists attended. The expressionist dynamics of Duncan's dancing took hold and some Symbolists began to practice "modern dance": in March 1907, a "Mme. K.," accompanied by Nikolaj Cherepnin, Rebikov and Skrjabin, performed Greek dances at a musical evening mounted as part of a Blue Rose exhibition. Barefoot dancing became a cause in Russia, as it had in Germany. Further, by the early 1910s the Dalcroze method of eurhythmics had a large following in Russia. Taylorism and Mejerhold's biomechanics also represented systems of body dynamics that commanded attention in this period. (Duncan's ideas would have a long life in Russia – in 1922 Isadora married the Russian poet Serge Esenin, whom she had met in February 1921, when she performed with the Bolshoi Theatre in Moscow. From 1921 to 1924 she had a school of dance in Moscow.)

Many thinkers and artists concluded that Western people could tap energies inherent in the body, energies that we had lost contact with, by using such non-Western means as Yoga, meditation, and vegetarianism. And from these beliefs about contacting energy, it was easy to conclude that by eliminating the toxic effects of hyper-rationality that were producing a necrosis of the body, one might attain a higher consciousness that would rejuvenate oneself and so allow one to triumph over death.

Thinkers such as Lev Bakst had expounded on the importance of the body, which he idealized. Indeed many Russian artists of the period took an interest in the idealized body. This idealization took several forms. One was the pursuit of body amplification and the development of the body through exercise and eurhythmics, whose utopian motivations are well-known. Another was the effort to fashion a new, technologically improved body – that idea, most readers will know, appealed to El Lisickij, Sergej Ejzenštejn, and Dziga Vertov, among others. The third was the effort to recover the innocent prelapsarian body. Thinkers went to great efforts to discover what must be done to recover the pristine body. A common proposal was the practice of nudity, which would enable one to be comfortable in one's body. The idea was not terribly shocking – the paganism that underlies Russian Orthodoxy was more tolerant of nudity than the Roman church; and Czar Nicholaj II, in his time, had not only removed all restrictions on social nudity, but he was also an avid participant and a believer in nudist ideals. He thought that nudity could help preserve and improve the health of society. Vladimir Lenin tried to establish nude beaches in the Soviet Union (a conviction in the healthiness of nudism was one of the few beliefs that Czar Nicholaj and Vladimir Lenin would have shared) and in the early 1920s nudists marched in the streets of Petrograd to celebrate the body. Among the most dedicated believers in the principle that nudity had redemptive potentials was the painter, boxer and life model, Ivan Mjasoyedov. CHECK CHECK CHECK CHECK Mjasoyedov's activities fused the idealization of the body through corporeal amplification to the idealization of the pristine body. In 1912 he issued his *Manifesto of Nudity* NOT DONE, declaring that the naked body is preferable to the clothed one. The nudism that Mjasoyedov expounded attracted many converts, including Leonid Andreev and Maksimilan Voloshin; it even received a degree of official recognition when the first Soviet Nudists organized an "Evening of the Denuded Body" ("Večer Obnajenovo tela") in Moscow in 1922, to celebrate nudity as the truly democratic manner of presenting oneself. Among artists, there were three Nicholajs – Nicholaj Evrejnov, Nikolaj Kul'bin and Nikolaj Kalmokov – whose collaborations were based on this conviction. Between 1910 and 1912 the playwright Nikolaj Evejnov and the painter Nikolaj Kul'bin collaborated on the manifesto "Nagota na Stzene" ("Nudity on Stage") which celebrated the expressive potential of the naked body. During the same period Evejnov collaborated with the

painter Nikolaj Kalmokov on a version of *Salomé* whose set was to have represented intimate details of the female anatomy – and though officials banned the play, Kalmakov continued to produce paintings for the set, and signed them with a stylized phallus. They were not alone in their interests in presenting nude actors on stage. In 1914, the director of the Chamber Theatre of Moscow, Alexander Tairov, mounted a production of Kalidasa's *Sakuntala*, with designs by Pavel Kuznetsov, which presented painted nude bodies on stage – in connection with this performance, Tairov asserted his conviction that theatre-goers should accept on-stage nudity as a distinctive and joyous theatrical costume. Lev Bakst, too, proposed putting nude players on stage. At the same time, Alexandra Kollontaj began to teach the benefits of free love and put the doctrine of free love into practice in her life.

Fedorov's interest in expanding the body's powers had more to do with Gnostic ideas of self-perfection. Probably on the basis of the occult conviction that reality is ultimately energy, Fedorov had assumed that nervous energy was identical with electricity and that electrical currents could transmit thought processes. The *fedorovtsy*, Fedorov's followers, continued to advocate Fedorov's ideas about amplifying human ability, developing them into plans to increase humans' pneumatic powers, to transform nervous energy into light and heat, and to use telepathy as a form of human communication. Thus, in 1923, the physiologist Sergej Beknev suggested that in the future human beings would be able to turn themselves into generators of heat and light whenever they wished and to use thought to change the structure of matter.

Sergej Ejzenštejn did not draw directly on Fedorov's marvellously baroque system. Nonetheless, he did propose a revolution in consciousness, to be brought about by the new art: "The new art must set a limit to the dualism of the spheres of 'emotion' and 'reason' . . . It must restore to science its sensuality. To the intellectual process its fire and passion. It must plunge the abstract process of thought into the cauldron of practical activity." The cinema would be his tool, "A cinema of extreme cognition and extreme sensuality that has mastered the entire arsenal of affective optical, acoustical and biomechanical stimulates." And what, we should ask, is this "extreme cognition"? With that question, the answer to which is fascinating, we must end.