



KNOWLEDGE AS FILM vs. KNOWLEDGE AS PHOTO: ALTERNATIVE MODELS IN EARLY SOVIET THOUGHT

Daniela Steila

While Lenin considers human knowledge similar to a mirror-like reflection of the object, Bogdanov emphasizes the creative role of the subject in organizing the world. On the basis of some textual evidences, it seems possible to illustrate the epistemologies of the two fields into which Russian Marxism divides at the beginning of the twentieth century, in terms of the two metaphors of photography on the one hand, and cinema on the other. In particular, while discussing Einstein's relativity, Bogdanov considers sense organs, memory, and all the apparatus of human knowledge “as a certain kind of cinematographic device”; Eisenstein deems that cinema is “an excellent instrument of perception ... for the sensation of movement”. Although it is difficult to find compelling proofs of exchanges and influences, this is an actual ‘tangential point’ between Bogdanov and Eisenstein's ideas on human knowledge.

*Culture as Organization
in Early Soviet Thought:
Bogdanov, Eisenstein,
and the Proletkult*
Editor-in-Chief:
Pia Tikka
Editorial Board:
John Biggart
Vesa Oittinen
Giulia Rispoli
Maya Soboleva



In intellectual history, influences of ideas are a major topic, and also a very difficult one: in order to prove contacts or impacts of ideas one has to demonstrate connections, readings, discussions, comments, notes... This is the intriguing and fascinating detective side of the intellectual historian's work, looking for the “smoking guns” which definitely prove relationships, exchanges, influences. In the case of Bogdanov and Eisenstein, both extremely compelling figures in early Soviet thought, we shall consider that, though belonging to different generations, they shared a common milieu, the *Proletkult* movement of the 1920s, where Bogdanov was a leading figure, and the young Eisenstein took part in discussions and writings within the *Proletkult* organization (Tikka 2009; Biggart 2016). Eisenstein, however, did not explicitly refer to Bogdanov in his works, nor did he openly discuss the latter's ideas. Their relationships need to be examined by a variety of interdisciplinary methods, which only a wide collective effort will probably be able to achieve. To such a picture I should like to add some curious details.

Bogdanov was interested in cinema long before the revolution, and maintained that cinema could be used to educate the new proletarian class. This is not surprising: Bogdanov had a serious scientific education, and he was very interested in technology in general. In his first utopian novel, *Red Star*, Bogdanov imagines innovative uses for both photography and cinema. In 1907 he noted the already existing application of photography in photo-telescopes: on Mars there were telescopes which take pictures so precise and detailed that they could be enlarged in order to show details invisible to the naked eye. Menni, a technician, explains to the author's *alter ego*, Leonid, that the “direct-vision magnification” of a certain telescope “is about 600, (...) but when that is insufficient we take a photograph and examine it under a microscope, which raises the power to 60,000 or more” (Bogdanov 1984: 40).

On Mars, photos are also used to hold attention alive during presentations. Another Martian character, Enno, gives “a fascinating account” of a distant planet, “its deep, storm-tossed oceans and towering mountains, its scorching sun and thick white clouds, terrible hurricanes and thunderstorms, grotesque monsters and majestic giant plants. He illustrated his lecture with moving pictures on a screen which took up an entire wall of the auditorium”. Leonid notices that “Enno's voice was the only sound to be heard in the darkness; the audience was plunged into deep concentration” (Bogdanov 1984: 72–73). A person so



deeply interested in the development of a new sort of “pedagogy” in order to develop proletarian culture, as Bogdanov was through his whole life, was obviously thinking of pedagogical applications of those new powerful means of representation and communication.

On Mars, cinema turns out to be very powerful. In respect of its technical potential, Bogdanov's imagination extended beyond development of sound cinema, which was already being experimented with on Earth, and envisages 3D movies. He writes:

“the theater in our little town had one feature that held particular fascination for me, namely the fact that no actors performed there at all. The plays were either transmitted from distant large cities by means of audiovisual devices, or – more usually – they were cinematic reproductions of plays performed long ago, sometimes so long ago that the actors themselves were already dead. The Martians have mastered the technique of instantaneous color photography and use it to capture life in motion, much as in our cinema theaters. But not only do they combine the camera with the phonograph, as we are thus far rather unsuccessfully beginning to do on Earth, they also employ the principle of the stereoscope to give the moving pictures natural depth. Two images, the two halves of the stereogram, are projected simultaneously onto the screen, and in front of each seat in the auditorium is fastened a set of binoculars, which combines the two flat pictures into three-dimensional ones. It was eerie to watch people moving, acting, and expressing their thoughts and feelings as vividly and distinctly as in real life and yet know that there was actually nothing there but a plate of frosted glass in front of a phonograph and an electric light operated by a clockwork mechanism. It was a weird, almost mystical phenomenon that filled me with a vague sense of unreality” (Bogdanov 1984: 87-88).

The last sentence of this amazing description of the 3D Martian movie theater is especially significant. According to Bogdanov, cinema turns out to be the best technical means of ‘reproducing’ reality in such a faithful, precise way that reproduction could be completely confused with reality, in a sort of ‘mystical’ experience.

In fact, the problem of the relationship between perception and reality was a central topic of discussion among Russian Marxists at the beginning of the twentieth century, just as it became – again – in the 1920s. Within a common materialistic framework, which necessarily considers human beings as a part of the material world, and sense perception as the first, basic connection between knowing subject and known object, one can illustrate the epistemologies of the two fields into

which Russian Marxism divides at the beginning of the twentieth century, in terms of the two metaphors of photography on the one hand, and cinema on the other.

It is well known that Lenin proposed his own epistemology as the only one that was consistent with “orthodox” Marxism, which relied on the whole history of materialism as opposed to idealism. As Friedrich Engels stated in his *Ludwig Feuerbach and the End of Classical German Philosophy*, in the whole history of thought philosophers split into two great fields: “Those who asserted the primacy of the mind over nature (...) comprised the camp of idealism. The others, who regarded nature as primary, belong to the various schools of materialism” (Marx and Engels 1990: 366). As far as epistemology is concerned, consequently, materialists explain human knowledge starting from the impressions that the external objects provide on the sense organs of the human body. Such a fundamental empiricism was considered as a sound point for Russian ‘orthodox’ Marxism. However, G. V. Plekhanov, the well-known ‘father of Russian Marxism’, whom Lenin openly declared to be his own ‘master’ in philosophy¹, had developed a peculiar ‘theory of hieroglyphics’ relying both on the philosophical tradition of French eighteenth century materialism, and modern physiology (Steila 1991). According to him, our impressions are undeniably subjective and cannot be identified with the material movements, which are their objective bases and which excite our sensations. However, there is an exact correspondence between the objective conditions of the thing and the sensation we feel when it stimulates our sense organs. Plekhanov concluded: “Our sensations are some kind of hieroglyphics that make us aware of what is happening in reality. Hieroglyphics do not resemble the events they communicate, but they are capable of communicating *with absolute accuracy* the events themselves and – what is of prime importance – the relations which exist between them”² (Plekhanov 1956: 501). So, according to Plekhanov, the ‘truth’ of our sensations did not consist in their being a ‘mirror image’ of things, but in their providing us with undistorted representations of the real relations between things or events. Lenin, however, deemed this to be the weakest point in Plekhanov’s thought: “Plekhanov was guilty of an

1 See V. I. Lenin, “Kak chut’ li ne potukhla “Iskra”?”, in Lenin 1960: 343; “Eshche raz o profsojuzakh, o tekushchem momente i ob oshibkakh tt. Trockogo i Bukharina”, in Lenin 1969b: 290.

2 G. V. Plekhanov, “Predislovie k pervomu izdaniju (‘Ot perevodchika’) i primechanija Plekhanova k knige F. Engel’sa: *Ludwig Feuerbach i konec klassicheskoj nemetskoj filosofii*”, in Plekhanov 1956: 501.



obvious mistake in his exposition of materialism” (Lenin 1962: 238). Lenin compared Plekhanov’s theory of hieroglyphs with Hermann von Helmholtz’s views on perception and experience, and endorsed Albrecht Rau’s criticism of the latter, in order to criticize Plekhanov. Lenin wrote: “an image can never wholly compare with the model, but an image is one thing, a symbol, a *conventional sign*, another. The image inevitably and of necessity implies the objective reality of that which it ‘images’. ‘Conventional sign,’ symbol, hieroglyph are concepts that introduce an entirely unnecessary element of agnosticism” (Lenin 1962: 235).

Instead of Plekhanov’s unnecessary emphasis on conventional signs, Lenin proposed his own theory of knowledge as ‘reflection’, which he considered much more consistent with the whole tradition of philosophical materialism. According to his views, the camera is a good way of explaining how we know reality. In *Materialism and Empirio-Criticism* one reads that “objective reality (...) is given to man by his sensations, and (...) is copied, photographed and reflected by our sensations, while existing independently of them” (Lenin 1962: 130). Any photographer would object that the camera is by no means a ‘neutral’ instrument for the reproduction of reality: owing to its technical characteristics it provides us with a two-dimensional account of three-dimensional reality. Besides, at the beginning of the century, colour reproduction was far from being precise. Finally, as we know very well, in any picture it is always the author’s ‘cut’ that defines what is actually photographed.

Nevertheless, the camera is often considered even now, in popular understanding, as a reliable means of reproducing reality, as a sort of reflecting mirror. The image we see in the mirror is also not at all identical with the real object, and the same is true for our perceptions, as has been well known since ancient times, and as the huge philosophical literature on the topic of ‘sense-deception’ testifies. What the example of the camera as a faithful reproducing device really means to say, is that in spite of the technical specificities of the camera, and the peculiarities of our sense organs, the object remains that object, within the photo as well as within our sensations. The object exists as such independently of our perception or photography, which merely reproduces it.

In Lenin’s works the example of photography as faithful reproduction of reality is actually used very rarely. Lenin used the word ‘photography’ in *Materialism and Empirio-Criticism*, as we have shown, but also once again in 1909, referring to a polemical article he was writing:

Ideological Decay and Disunity Among Russian Social-Democrats. He wrote that this essay was “an instantaneous photograph of one of the rivulets of that broad torrent of ideological confusion” (Lenin 1963: 109).³ which gave rise to different ideological movements dividing Russian Social-Democracy. Again, photograph means a representation of reality, in this case a quite complex reality, corresponding to the picture itself.

This meaning of the word photograph was already wide-spread in Russian scientific literature at the end of the nineteenth century. For instance the well-known physiologist I.M. Sechenov wrote in 1892: “The eye refers to forms and movements, like a photographic record, capable of clearly perceiving not only motionless, but also moving forms; therefore the similarity between what is sensed and the real is here as tangible as the similarity between a human being's face and his or her photo”⁴.

Sechenov was one of the authorities Plekhanov relied on while developing his theory of hieroglyphs, but Lenin did not take this into account when criticizing Plekhanov⁵. He preferred to maintain that Sechenov was a leading figure of Russian science⁶. Photography was in general considered as a good representative of realistic mirror-like knowledge within materialism, and not only by Lenin. Cinema, on the contrary, is never used by Lenin as a metaphor for knowledge. In his works one can find only a few passing references to the topic, mainly relating to propaganda documentaries and their possible impact (for instance in 1913 in order to criticize its ideological use by German Catholics or Taylorist capitalists; or after the revolution to support its ideological use for the benefit of the victorious revolution)⁷.

Amongst those Marxists who were critical of Lenin and Plekhanov's ‘orthodoxy’, photos were not considered at all as a good example of how knowledge works. One of the first to reject the analogy

³ V.I. Lenin, “Ideological Decay and Disunity Among Russian Social-Democrats”, in Lenin 1963: 109.

⁴ I.M. Sechenov, “Predmetnaja mysl' i dejstvitel'nost'” (1892), in Sechenov 1952: 472.

⁵ When criticizing Plekhanov's theory of knowledge, Lenin rather considered it to have derived from Helmholtz's positions. On the connections of Plekhanov, Sechenov and Helmholtz, see Steila 1991.

⁶ Lenin asked his mother to send to him in Geneve a copy of Sechenov's recent book *Elementy mysli* in 1904 (see Lenin 1975: 233).

⁷ See V. I. Lenin, “Nauchnaja' sistema vyzhimanija pota” and “Organizatsija mass nemetskimi katolikami”, in Lenin 1973: 18, 188-190; “Osnovnye zadachi diktatury proletariata v Rossii”, in Lenin 1969a: 95-96; “Ukazanija o rabote agitatsionno-instruktorskikh poezdov i parakhodov”, in Lenin 1974: 72-73; “Tezisy o proizvodstvennoj propagande”, in Lenin 1970a: 16; “Direktivy po kinodelu”, in Lenin 1970b: 360-361.



was Joseph Dietzgen, who was very popular in Russia at the beginning of the twentieth century amongst the so-called Machian Marxists, i. e., the opponents of Lenin (Steila 2013: 237–251). Marx himself had described Dietzgen as a representative of “autodidactic philosophy – pursued by workers themselves” (reference).⁸, Engels had written that this German worker could understand dialectics by himself, independently of Hegel (reference).⁹ At the same time, Ernst Mach, in the Preface to the Russian translation of his *Analysis of Sensations*, wrote that “J. Dietzgen ... has reached conclusions very similar to those presented in this book” (Mach 1908: 4). Similarities between Dietzgen's positions and Machian thought (the ideas of Mach himself, and those of his Russian followers) were often emphasized at that moment (Kautsky 1909; Jushkevich 1907: 80, 86-88; Valentinov 1908: 161-168; Dauge 1907: VIII), and also later. In 1925, for instance, while discussing Bogdanov's *Tectology*, I. Vajnshtejn pointed out some parallels between Bogdanov's theory of organization and the thinking of Dietzgen (Vajnshtejn 1925). Indeed, Dietzgen had criticized the epistemology of ‘reflection’ exactly by maintaining that camera does not take pictures conforming to reality. He wrote: “Nothing more insipid has been said of truth and knowledge than ... that truth is the conformity of our knowledge with its object. How can a picture ‘conform’ to its model? Approximately it can ... But to be altogether alike, quite the same as the original, what an abnormal idea!” (Dietzgen 1906: 140).

These topics, widely discussed within Russian Marxism at the beginning of the twentieth century, became again very important during the 1920s. Since, by this time, Bogdanov had become a prominent figure within the powerful *Proletkult* movement, and since he maintained, as it were, un-orthodox theoretical positions in relation to the basic principles of official Marxism, Lenin's *Materialism and Empirio-Criticism* was republished in a second edition, which became much more influential than the first. When the book came out for the first time in 1909, most readers took it to be mainly as a polemical work, as part of the ideological struggle within the Bolshevik fraction at that time (Steila 2013: 328–339), but in 1920, in its second edition, it was put forward as being an authoritative statement of Marxist orthodox epistemology. The post-face by V. I. Nevsky, *Dialectical Materialism and the Philosophy of Dead Reaction*, made it clear that Lenin's work represented Orthodoxy in

⁸ K. Marx's letter to L. Kugelmann, December 7, 1867, in Marx – Engels 1987: 497.

⁹ F. Engels, “Ludwig Feuerbach and the End of Classical German Philosophy”, in Marx – Engels 1990: 383-384.



Marxist thought, and that Bogdanov was to be condemned as a dangerous heretic. The main charge was that “Bogdanov ... obstinately maintains, now as before, that the physical world is ‘socially organized experience’” (reference)¹⁰. Furthermore, in his later works (Nevsky quoted *Philosophy of Living Experience, Proletarian Culture, Outlines of the Science of Organization, Tectology...*) Bogdanov had repeated the same mistakes that he was accused of by Lenin in *Materialism and Empirio-Criticism*. In order to show which kind of mistakes these were, Nevsky mentioned Bogdanov's conception of the ‘physical’ as depending on collective experience. Bogdanov had written:

“Physical experience is the experience of some person, namely, the experience of all of humanity in its development. This is a world of a strict, settled, elaborated uniformity of law, of definite, precise correlations; it is a well-established world where all propositions of geometry, all formulae of mechanics, astronomy, physics, etc., are valid. ... To understand this world, *this* system of experience, independently of humanity, is it possible to say that it existed prior to humanity?” (reference).

Bogdanov had answered: “when we say that the law [of gravity – D.S.] was valid prior to the existence of humanity, it is not the same as saying *independently* of humanity” (Bogdanov 1913: 226–227). This was the breaking point between orthodox Marxist on the one hand and Bogdanov's science of organization on the other. Nevsky's post-face inflamed the discussion over Bogdanov's system of thought.

A few years later in 1923 Bogdanov contributed to an interesting book on Einstein's theory of relativity. This volume included the translation of an extensive essay by Moritz Schlick, and some articles by Russians: one by Bogdanov's close friend, Vladimir Bazarov, on space and time in the light of the new theory; Bogdanov's essay on the theory of relativity from the organizational point of view; and a work by Pavel Jushkevich on the philosophical meaning of relativity. Bogdanov maintained that Einstein's theory was of great importance for his own general science of organization. From such a standpoint, “the question of the correlations between a complex (any kind of – physical, biological, psychical, social) and its environment” turns out to be one a key problem (Bogdanov 1923: 101)¹¹. Einstein's theory considers the

¹⁰ V. Nevsky, “Dialectical Materialism and the Philosophy of Dead Reaction”, in Lenin 1927: 331.

¹¹ Bogdanov wrote on this topic another article (Bogdanov 1924), which was mainly a discussion of Timirjazev's ideas on relativity.



movement of physical bodies as a specific case of such a general problem. In Bogdanov's words:

“Transfer represents a particular case of interaction of a body with its environment, a special case: the body loses and gains not energy, but *the link* with its environment, loses a link (spatial contact) with some elements, gains a link with others. Conventional thinking sees there *two* facts: 1) the environment itself is not moving; 2) the body moves. The theory of relativity works on the premise that here there is *one* fact, not two. It is the correlation of two sides that changes; depending on the position of the knowing subject, this might be expressed in one way, or another” (Bogdanov 1923: 102).

In order to understand movement from the standpoint of the theory of relativity, more than one observer is needed. Classic physics assumed one observer, the new physics requires a sort of collective, social engagement:

“Since a single observer cannot occupy two positions *at the same time*, even mentally, the question of coordination appears to be essentially a specific *organizational-social* task: to unify, to connect the knowledge of two observers, one of whom is really or mentally attached to the moving body, the other to its environment, whilst each of them operates with *his own* instruments of orientation, his own system of space-time coordinates” (Bogdanov 1923: 104–105).

Bogdanov was therefore able to accept Einstein's theory as a confirmation of his own thinking, since Einstein's theory moved toward a sort of “not-subjective” relativism, thereby developing farther the point of view of Mach (Bogdanov 1923: 121).

The contents of this book focused on the idea that the theory of relativity should be considered as a confirmation of, and perhaps a development and regeneration of, the old Machism. Jushkevich, who examined the philosophical significance of Einstein's theory, wrote that the theory of relativity was “wholly filled with the spirit of those influences, which its author acknowledged, when referring to Hume and Mach as the thinkers who gave him conceptual inspiration for his work” (reference). Jushkevich concluded: “the theory of relativity is the rebirth of modern positivism, which receives here new confirmation and support” (Jushkevich 1923: 155)¹².

In his discussion of Einstein's relativity, Bogdanov made a very curious statement: “Our sense organs, memory, and all the scientific

¹² Einstein himself acknowledged certain influence of Mach's ideas on his own positions as a young scientist (see A. Einstein, “Autobiographisches / Autobiographical Notes” in Schilpp 1951: 20-21; Blackmore 1972: 247-285).



auxiliary means for perceiving and recording facts, can be considered as a certain kind of cinematographic device” (Bogdanov 1923: 107). Let us examine the context in which this statement appears. Bogdanov is explaining that “the theory of relativity formulates the corrections, through which one can move from the projections and forms of the events of the system *A* within system *B* to the ‘reality’ of those events in the same system *A*, where they take place, and vice versa” (Bogdanov 1923: 107). This possibility can be explained through the image of ‘instantaneous photographs’ of one system, taken from the other. But at this point Bogdanov makes the statement quoted above, and emphasizes that it will be more correct and effective to compare our perceptive devices to cinema instead of photography. He explains:

“If two such devices, within the systems *A* and *B*, simultaneously film the other system, each “film” will be unfaithful, “distorted” when compared with a film taken within the *same* system: the representations of bodies will be foreshortened in the line of the movement, the very course of the events is slowed down (“the clock lags behind”), for each in the same way and from their respective vantage points. A person, for instance, in these ‘films’ has a certain height when standing up, and another when lying down. It is clear that formulae permitting one to move from the coordinates of one system to another should be understood as being formulae of *correction* for the passage from more or less distorted representations to the internal reality of each system: formulae of substitution (*podstanovka*) of things and events, to be applied to their perceptible forms” (Bogdanov 1923: 107)¹³.

This passage is particularly interesting. Here Bogdanov puts the theory of relativity into his own perspective of knowledge as the ‘construction’ of reality by collective subjects. The formulae which allow to move from one system to the other are called ‘formulae of substitution’ (*podstanovka*). The term ‘substitution’ (*podstanovka*) had been used by Bogdanov since *Empiriomonism* to mean a methodological approach aimed at explaining phenomena and events within life as well as within science (Bogdanov 1995: 53).

¹³ “Если два таких аппарата, находясь в системах *A* и *B*, делают взаимно съемку этих систем, то их “фильмы” будут изменены, “искажены” по сравнению со съемкою из *своей* системы: изображения тел окажутся укорочены по линии движения, самый ход событий замедлен (“отставание часов”), то и другое одинаково с обеих сторон. Человек, напр., на этих “фильмах” имеет один рост, когда он стоит, и другой, - когда лежит. Ясно, что формулы перехода от координат одной системы следует понимать как формулы *поправки* для перехода от более или менее искаженных изображений к внутренней действительности каждой системы, формулы *подстановки* вещей и событий под их воспринимаемые образы.”



According to Bogdanov: “substitution consists in the fact that one object or phenomenon is replaced for the purpose of cognition by another one, real or mental. For instance, under a work of art ‘are put’ certain images, sentiments, moods, which it stimulates in the person who reads it, looks at it, or listens to it, ‘under’ a white sun ray is put the sum of all those colored rays, into which it is decomposed through the prism, etc.” (Bogdanov 1995: 52).

The main point for Bogdanov is that substitution is not an individual, but a collective method of constructing reality: “The principle of substitution lies in the *communication* among people, in their *mutual understanding*” (Bogdanov 1995: 52). Substitution is the method by which a human group in a certain epoch responds to the practical and theoretical need for a harmonious and unified worldview. Within such a worldview human beings can understand each other and interact with reality¹⁴.

As is well known, in Bogdanov's view, experience is essentially social. In 1906 Bogdanov wrote: “The world of experience crystallized and continues to crystallize out of chaos. The force that determines the forms of such crystallization is the human relationship. Beyond these forms there is no *experience*, since an unorganized mass of feelings does not constitute an experience. Thus, experience is social in its basis, and its progress is the *socio-psychological process of its organization*, to which the organizing individual-psychic process completely adapts itself” (Bogdanov 1906: XXXIII-XXXIV).

To understand how substitution works does not mean just to become aware of a sort of spontaneous process within one's own consciousness, but to appreciate the deep social nature of such a process. In one of Bogdanov's unpublished letters to Bazarov, one reads: “Substitution is a complicated product of social development, and it is particularly wrong to confuse it with the passage from perception to apperception. Substitution is a problem of cognitive methodology, i.e., a problem of the social – not just the psychological – order, and it emerges *on the basis* of social symbolism” ((reference)).¹⁵

From the standpoint of Bogdanov's thought, the theory of relativity could be seen as a new perspective, capable of producing a better form of substitution. Bogdanov considered this to be an instance of the ‘unifying tendency’ that was at work within natural science

¹⁴ More on the concept of ‘substitution’, see Steila 2009: 153–157.

¹⁵ Archive Fondazione Basso. Bogdanov's Letter to Bazarov, June 21, 1911 (see Steila 2009: 168).



(Bogdanov 1996: XVI). In the first book of *Tektology* he writes of the theory of relativity:

“Its formulation and analysis are entirely based upon the relationships between observers accepting these or other events, and upon the conditions of signaling which let them co-ordinate their observations. The notion of the physical environment is evidently expanded here in the organizational sense; it is complemented by elements never before taken into account, namely, enquiring beings and their relationships” (Bogdanov 1996: 100).

Such a view overcomes the classic physics of the ‘single observer’ and creates new opportunities for epistemology to overcome the subjectivity of a point of view within one system and to take into account other systems. Communication allows people to develop a wider worldview. It was not fortuitous that the example Bogdanov used to illustrate how we can employ the formulae of substitution to move from one set of representations to another was a classical epistemological problem. Bogdanov wrote:

“Let us imagine a person living in a cave; its entrance is blocked by a optical-deforming pane; he can observe and study the external world only through this pane. It is evident that all the measures and relations in this world for that person are distorted in a certain way. In order to predict the positions of moving external objects, that person must use formulae, similar to the formulae of the general theory of relativity, in particular, Gaussian coordinates. But in exactly the same way all measures and relationships of everything that happens within the cave are distorted for an observer on the outside. If both sides succeed in identifying the properties of the medium separating them, by introducing corrections in their observations, they will be able to establish a *precise* picture of the things and the events” (Bogdanov 1923: 107–108). In other words, a new, better, substitution is achieved.

In one endnote in the first book of *Tektology*, Bogdanov maintains that “current formulations of the ‘principle of relativity’ elaborated by Einstein and others do not seem to me ... to be definitive from an organizational point of view”, since “they always assume only *two* observers and the light signaling between them” ((reference. Bogdanov continued: “For example, since direct light signaling would be impossible if observers were moving away from each other faster than the speed of light – a ray of light from one could not reach the other – then it is assumed that the relative speed of bodies is always less than the speed of light; and that the speed of light is the *fastest possible* speed. However, if we introduce into the system of coordination a third



observer as an intermediary between the two, we obtain a different result” (Bogdanov 1989: 137).

Furthermore, if two electrons fly out from a radioactive nuclei at a speed close to the speed of light, “it would seem perfectly clear that they are *objectively* moving apart from each other ... faster than the speed of light. If one could imagine individual observers located on each of these particles, then, through the intermediary of the observer placed between them, they will be able to establish this, though observations without an intermediary would give them a different result” ((reference). Bogdanov concludes that: “application of the organizational point of view leads to a far more simple conception of the relativity principle than the usual one” (Bogdanov 1989: 137–138).

From the standpoint of the general theory of organization, it is perfectly understandable that human beings can change their frameworks, their pattern of interpretation of reality, since those frameworks have nothing to do with Kant's forms of cognition. Bogdanov emphasizes: “Truly, there are certain forms of thinking that people use to consolidate their experience; but they are by no means the eternal ‘constitution of cognitive capacities’. They are means for the organization of experience, which are developed and altered with the growth of experience and the alteration of its contents” (Bogdanov 1996: 47).

In Bogdanov's views the knowing subject is by no means a sort of a passive recorder of perceptive data, a ‘camera’ as in Lenin's epistemology. Instead, one could claim, the human collective is engaged in the production of reality and its organization, one could say in its ‘montage’.

We cannot find a ‘smoking gun’ that would prove evidentially that the young Eisenstein had read Bogdanov's epistemological essays. But, curiously enough, according to Eisenstein as well as Bogdanov, cinema could provide us with an orientation in the four-dimensional space-time continuum, which is implicit in Einstein's theory of relativity. In Eisenstein's essay *The Filmic Fourth Dimension* we read:

“The fourth dimension? Einstein? Or mysticism? Or a joke? It is time to stop being frightened of this new knowledge of a fourth dimension.... Possessing such an excellent instrument of perception as the cinema – even on its primitive level – for the sensation of movement, we should soon learn a concrete orientation in this four-dimensional space-time continuum, and feel as much at home in it as in our own house-slippers” (Eisenstein 1949: 69–70).



Cinema is “an excellent instrument of perception ... for the sensation of movement”, according to Eisenstein ((reference). In turn, according to Bogdanov, “our sense organs, memory, and all the scientific auxiliary means to perceiving and recording facts, can be considered as a certain kind of cinematographic device” ((reference). This may not provide evidence for a direct or mutually acknowledged exchange of ideas between Eisenstein and Bogdanov, but it can certainly be regarded as a tangential point of encounter.

References

- Biggart, John. 2016. “Bogdanov's Sociology of the Arts”. In *Culture as Organization in Early Soviet Thought*. Helsinki: Tangential Points Publication Series.
- Blackmore, John T. 1972. *Ernst Mach*, Berkeley: University of California Press.
- Bogdanov, Aleksandr A. 1906. *Empiriomozizm. Stat'i po filosofii*, III. St.Petersburg: Izdanie S.Dorovatovskogo i A.Charushnikova.
- 1913. *Filosofija zhivogo opyta*. St.Petersburg: M.I. Semenov.
- 1923. “Princip otноситel'nosti s organizatsionnoj točki zrenija”, in *Teorija otноситel'nosti Ejnshtejna i ee filosofskoe istolkovanie*. Moscow: Mir, 101-122.
- 1924. “Ob”ektivnoe ponimanie principa otноситel'nosti (Metodologicheskie tezisy)”, *Vestnik Kommunisticheskoy Akademii*, 8: 332-347.
- 1984. *Red Star. The First Bolshevik Utopia*. Edited by Loren R.Graham and Richard Stites, translated by Charles Rougle. Bloomington, Indianapolis: Indiana University Press.
- 1989. *Tektologija. Vseobshchaja organizatsionnaja nauka*. 1. Moscow: Ekonomika.
- 1995. *Neizvestnyy Bogdanov. Kniga 3*. Edited by N.S. Antonova and N.V. Drozdova. Moscow: AIRO – XX.
- 1996. *Bogdanov's Tektology, Book 1*. Edited and translated by Peter Dudley, Vadim N. Sadovsky and Vladimir V. Kelle. University of Hull: Centre for Systems Studies.
- Dauge Petr G. 1907. “K russkomu izdaniju”, in E. Untermann, *Antonio Labriola i Iosif Dicgen*, St.Petersburg: P.G. Dauge.
- Dietzgen Joseph 1906. *Some of the Philosophical Essays*. Chicago: Kerr.
- Eisenstein, Sergej 1949. *Film Form. Essays in Film Theory*. Edited by J. Leyda. New York: Harcourt, Brace & World.
- Jushkevich Pavel S. 1907. “Iosif Dicgen. Ocherk ego filosofii”, *Obrazovanie*, 9: 69-89.
- 1923. “Teorija otноситel'nosti i ee znachenie dlja filosofii”, in *Teorija otноситel'nosti Ejnshtejna i ee filosofskoe istolkovanie*. Moscow: Mir, 123-155.
- Kautsky, Karl 1909. “Über Marx und Mach”, *Der Kampf*, 10: 451-452; “O Markse i Mache”, *Vozrozhdenie*, 9-12: 77-80.
- Lenin, Vladimir I. 1927. *Materialism and Empirio-Criticism*. New York: International Publishers.
- 1960. *Collected Works*, 4. Moscow: Progress Publishers.
- 1962. *Collected Works*, 14. Moscow: Progress Publishers.
- 1963. *Collected Works*, 16. Moscow: Progress Publishers.



- 1969a. *Polnoe sobranie sochinenii*, 38. Moscow: Izdatel'stvo politicheskoy literatury.
- 1969b. *Collected Works*, 42. Moscow: Progress Publishers.
- 1970a. *Polnoe sobranie sochinenii*, 42. Moscow: Izdatel'stvo politicheskoy literatury.
- 1970b. *Polnoe sobranie sochinenii*, 44. Moscow: Izdatel'stvo politicheskoy literatury.
- 1973. *Polnoe sobranie sochinenii*, 23. Moscow: Izdatel'stvo politicheskoy literatury.
- 1974. *Polnoe sobranie sochinenii*, 40. Moscow: Izdatel'stvo politicheskoy literatury.
- 1975. *Polnoe sobranie sochinenii*, 52. Moscow: Izdatel'stvo politicheskoy literatury.
- Mach, Ernst 1908. *Analiz oshchushchenij i otnoshenie fizicheskogo k psikhicheskomu*, 2-oe izd., Moskva: Skirmunt.
- Marx, Karl and Frederick Engels 1987. *Collected Works*, 42. London: Lawrence and Wishart.
- 1990. *Collected Works*, 26. London: Lawrence and Wishart.
- Plekhanov, Georgij V. 1956. *Izbrannye filosofskie proizvedenija*, 1. Moscow: Gospolitizdat.
- Schilpp P. A. Editor 1951. *Albert Einstein: Philosopher-Scientist*, 2nd ed. New York: Tudor.
- Sechenov, Ivan M. 1952. *Izbrannye proizvedenija*, 1. Moscow: izd.vo AN SSSR.
- Steila, Daniela 1991. *Genesis and Development of Plekhanov's Theory of Knowledge. A Marxist Between Anthropological Materialism and Physiology*, Dordrecht: Kluwer.
- 2009. "From Experience to Organization: Bogdanov's Unpublished Letters to Bazarov", in Vesa Oittinen, Editor, *Aleksandr Bogdanov Revisited*. Helsinki: Aleksanteri Series, 1: 151-172.
- 2013. *Nauka i revoljucija. Recepcija empiriokriticizma v ruskoj kul'ture (1877-1910 gg.)*. Moscow: Akademicheskij Proekt.
- Tikka, Pia 2009. "Tracing Tectology in Sergei Eisenstein's Holistic Thinking", in Oittinen, Vesa, Editor, *Aleksandr Bogdanov Revisited* Helsinki: Aleksanteri Series, 1, 211-234.
- Vajnshtejn I. 1925. "Iskusstvo i organizatsionnaja teorija", *Vestnik Kommunisticheskoy Akademii*, 11: 204-222.
- Valentinov, Nikolaj 1908. *Filosofskie postroenija marksizma*. Moscow: Sotrudnik provincii.