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"THE SCIENCE OF THE FUTURE"– ALEKSANDER BOGDANOV'S TECTOLOGY

"Philosophy is nearing its end. Empiriomonism is no longer a genuine philosophy but only a transitional form, for it knows where it is heading and to what it should give its place".[1] These are the concluding words Aleksander Bogdanov's *Philosphy of Living Experience*, a popular study concluded in 1911 and published two years later. At that time, i.e. in 1913, Bogdanov published the first volume of his *Tectology*, or "universal science of organization". (Volume II came out in 1917.) The two volumes were translated abroad and reprinted at home. The whole work, along with its third volume, appeared in 1922 as the second edition (according to a bibliography drawn up by D. Grille). It is remarkable that this work of Bogdanov's life remained virtually unknown, apart from the 1920s. Bogdanov is still remembered primarily as an empiriomonist, a follower of Ernst Mach, a continuator of idealism, of George Berkeley's philosophy, etc. In an earlier article on the Russian philosopher's ideas I have tried to show that none of these affiliations suffices to characterize him adequately.[2] I pointed out that since he followed in the footsteps of Marx and Mach, thereby modernizing Marxism, Bogdanov relinquished the philosophy of subjectiveness. I also pointed out that in his gnosiological analyses he probed not *what* it is the cognizing subject– a collective, a class, a social group– experiences while assimilating the world, but *how* the substance of this process of cognition is articulated in interpersonal communication, or in practical production. Empiriomonism was one stage, or, more precisely, a gnosiological level of the main interpretation of Bogdanov's ideas, upon which he also based his sociocreational social philosophy. This interpretation was a generalized

[1] A. Bogdanov, *Filosofia zhivogo opyta*, Moskva 1920, p. 255.

[2] M. Styczyński, "Filozofia fizjologii: empiriomonism Aleksandra Bogdanowa" ["The Philosophy of Physiology: Aleksandr Bogdanov's Empiriomonism"]. *Studia Filozoficzne* 1980, No. 11, pp. 39–57.

exposition of the *uniformity* of all nature (including man), of the *unity* of mechanisms and actions, and thus of their *homogeneity* against the background of the harmonious, organizational-executive division of labor inside the proletarian collective. Viewed in this way, tectology may be regarded less as yet another philosophical product (in the sense of solution to a classical problem) than as the record of a systemic concept of interaction (the occurrence of some relations and events in the world) along with possibilities and conditions for operating in this world on the ground of fundamental laws and dependences. Tectology, then, would be a "science of method", probably the first ever Russian methodology to have been expressly pragmatic as well as very democratic in application, as can be seen from its simple language and common sense examples. After all, tectology was intended for a mass-scale working-class audience. Nobody can fail to notice that tectology has its own philosophical rationale – as will be evident from what follows – but it was not philosophy Bogdanov wanted (as he still did when plunging himself into his empiriomonistic considerations) but its liquidation, a liquidation *via* a theory of action. Bogdanov's own philosophy implied that with the ascent of the proletariat and of the machine, the time of philosophy was over and that a proper moment has come for it to go. If, reasoned Bogdanov, existence and thinking are essentially one (what this oneness actually was was to be demonstrated by empiriomonism), then a collective in an industrial society can draw its best lesson – the "science of the future" – from a praxiological system which is derivable from mechanisms of nature and which safeguards the possibly most efficient utilization of nature. However, from his system alone Bogdanov could not deduce how naive this belief was in reality.

TECTOLOGY AS AN EXPRESSION OF PROLETARIAN CULTURE

Tectology (from Greek, the science of building), designed as a "critique of the practical reason" of Marxism, is (a) a general theory of the world of nature's dynamics, and (b) a general concept of purposeful and efficient action owing to the fact that man, or more exactly, worker collectives, imitate mechanisms inherent in the world around them. "The possibility itself of imitation is in fact best evidence of there being no essential difference between nature's own uncontrolled work and man's planned activities. This is sufficient evidence of the *basic homogeneity* of organizational functions of man and nature" (italics added).[3] Man engages in dialogue with nature through his tools, a dialogue which is the more intensive the more efficacious and efficient are these tools. To be true, capitalism had made this possible, but it had not abolished the centuries-long division of labor, and hence the desired "homogeneity of organizational functions of man and

[3] A. Bogdanov, *Tektologia. Vseobshchaya organizatsionnaya nauka*, vol 1, Berlin 1922, p. 25.

nature" could not be fulfilled because while nature, on account of its internal mechanisms, was uniform in organization and performance (it controlled itself), society was at the same time disintegrating in its organization and performance. But the situation changed with the proletariat's appearance in the arena of nature, as the proletariat concentrated both the control and actual performance of production in its hands. It was also then that tectology could first appear as a general praxiology which is actually a self--awareness of the producing proletariat. Tectology becomes possible because for the first time in centuries man succeeded in depicting nature's unity and dynamics in its full dimension and did this not in a "passive" theory or knowledge but in action, that is, in the deepest core of the universe. The proletariat learns in the process of production, and nature also produces; and so, Bogdanov argues, tectology should collect and order the most general dependences of what is already the common motion of nature and the proletariat.

There are definite reasons, says Bogdanov, for which the classic works of Marxism could not play the part of a new, proletarian science, even though, as Bogdanov never denied, Marxism came closest to defining the role the proletariat was to play in culture. Above all, it was Marxism that pointed out the economic factor which is all-decisive in social development. Also, it revealed the struggle of the classes. Marxism further disclosed the secondary, derivative character of all domains of human spiritual culture along with their gnosiological distortions. However, Marxism retained too many theoretical relics of the bourgeois era, especially Hegel's "formal dialectics", which I am going to return to later. Marxism, claimed Bogdanov, had furnished a one-way clarification of the relationship between production relations and ideology, but failed to account for ideology's objective role in society, its unavoidable necessity. For, "in an organized system, every part complements the remaining parts and in this sense is necessary for them as one part of the whole which has its own significance. In particular cases, Marxism resolved this matter by pointing out that this or other ideology serves the interests of this or other class, consolidates its conditions for rule, or is an instrument of struggle against the other classes. But it [Marxism] never posed this problem in a general meaning, and for numerous significant cases it adopted uncritically old pre-scientific formulations; e.g., it regarded the arts merely as adornments of life, the mathematical and natural sciences as being of supra-class significance [sic!], and the more general truths of science as pure truths independent of social relations."[4] In other words, Marx discovered the class determinants of culture, especially of ideology, but was not consistent enough in interpreting the phenomena of culture, which after all are also social phenomena (such as production relations), in terms of class interests. This is to say, Marx regarded some

[4] *Ibid.*, p. 90.

domains of social processes as being— yes!— of supra-class significance. So, there comes *Tectology* in order to bridge this gap in the realm of science, just as *Proletarian Culture* (the title of another Bogdanov's work) was to do in the realm of artistic phenomena.

The idea that mathematical and natural sciences are of class character, which today is quite shocking an idea, was, on the one hand, both a consequence of Bogdanov's own philosophy, and, on the other, of an endeavor to work out a consistent interpretation of Marxism itself. Marxist doctrine interpreted the social world in history. It moved about the plane of sociological and economic analyses, while not touching upon the methodological problems of labor itself, even less so of labor which has been liberated both as concerns its organization and performance. But, "the point is, to change the world". So, it is necessary to create pragmatic methods of purposeful changes of the world on he basis of natural actions. "In tectology— even though it 'explains' how various elements can combine with one another in nature, work and thought— the purpose is primarily to *master practically* such combinations in all possible ways. Tectology all boils down to practice, and even the process of cognition itself is, in tectology, just a special case of organizational practice, a kind of coordination of a special type of complexes"[5] (italics added).

Tectology's methodological pragmatism was an expression of Bogdanov's belief in man's "integration". As he looked at the stages of human culture (primitive, authoritarian, individualistic) from the angle of division of labor in organization and performance, the Russian philosopher observed that never before had man been able to achieve a fulfillment, a completion of his humanity. Man's "fragmentation" which dismembered his consciousness, paralyzed his will, and brought about moral and material distress, resulted from the inherent deficiency of life-sustaining production structures, from the particular place occupied by the given member of the community, from his awareness of inadequacy of his endeavors, from a sense of a fatalistic dependence on others. People did not feel happy because, production relations being as they were, people were not self-complementary, that is, their cooperation was enforced by hostile or inscrutable circumstances.

In primitive culture, man lived in a horde-type collectivism; while he was admittedly immersed in his community, in the group's collective experience, his awareness of inadequacy of his endeavors, from a sense of a fatalistic of nature rendered his collective safety illusory and fragile. "Simplicity and elementarity did not make life harmonius".[6] In turn, authoritarianism, whether as patriarchy of feudalism, dissociated community into "spirit" and "flesh", that is, into a ruling center and impassive order-takers, into an active will and a passive force. Thinking ceased to be totalitarian in

[5] *Ibid.*, p. 10.

[6] A. Bogdanov, *Novyi mir (statii 1904–1905)*, Moskva 1905, p. 15.

character, as it had been in primitive culture, but became divided according to the place people occupied on the social ladder. An authoritarian dualism appeared, which is "a historically prior form of world outlook".[7] It was there that, as Bogdanov argued, what we call cognition emerged, the faculty which enables humans to distinguish an active and a passive element in the reality around them. So, causality in thinking about the world arose, which was a reflection of social causality in production. All human emotions, desires and values were directed centrifugally to an authoritarian (patriarchalism) or transcendental (feudalism) frame of reference. Fragmented in the production process, people were always left face to face with something or somebody alien, and often also hostile. Complete stagnation in primitive culture was forestalled by crises such as overpopulation or famine which goaded people into seeking more efficacious tools and more rewarding production techniques. A new type of social references, and thus a new type of culture (authoritarianism), developed. It was in this culture that, through the gradual takeover of individual specific production lines in fewer and fewer hands, production was becoming increasingly specialized and commercial. Individualism began to constitute crystalline centers of social activeness. Thenceforward, "the collective whole cannot be held together and regulated by just one will; it splits and falls apart into independent groups".[8] Anarchy of society (capitalism) reaches its apex. People are toward one another like separate monads linked only by anonymous productive ties. The human "self" is developing, while "the hammer of social antagonisms is forging individual consciousness".[9] There is no "self" in primitive or authoritarian society, in which a person cannot envisage himself without another, though not necessarily equal person.

In individualistic culture, the absolute "self" hails its triumph, and it is governed by uncontrolled mechanisms of socio-economic life. The fragmented, individual consciousness does not, Bogdanov goes on to say, comprise the total body of problems life presents people with. All those "damned problems" of philosophy – such as: Who am I? What is the world? How did it come about? Why is there so much evil in it? – arise due to the insufficiency of what is a particular, individual perception of the world. The bourgeois world, the circle of egoistic individuals clawing to their vested interests, genrates all those "torments of creation" known if only from literary works. But it is also this world that, owing to the huge growth of technology and production power, gives birth to what will be both its end and its continuation – the proletariat. "The fragmented human being is overwhelmed by an uncontrollable desire to become again a whole. This desire condemns man to inner qualms of discontent but it also pushes him onto the road of struggle

[7] *Ibid.*, p. 22.
[8] *Ibid.*, p. 27.
[9] *Ibid.*, p. 30.

for fulfillment. On this road, man gets integrated".[10] The "new world" of collectivist culture is precisely that much-desired integration of man, which is based upon the unity of his practical experience– the unity of the worker's organizational and executive functions. He himself operates a machine, controls it, and hence his consciousness is of the same type as earlier authority of the bourgeois production organizer. Thereby, all factors causing the collective's stratification will disappear, and a "brotherly equality" of the working people will set in while egoistic interest will be eliminated. The fundamental homogeneity of human experience, coupled with full mutual understanding, will emerge as "a community of people, with full equality of their mutual situation".[11]

This is an outline of a program Bogdanov released in 1904–05 and published in book form as *The New World* (1905) and reprinted in *Proletarian Culture* (1924). This earliest social program advanced by the Bolshevik Bogdanov was composed of the following studies– *The Integration of Man, Norms and Goals of Life, Philosophy's Damned Problems.* Several years later, when he no longer was member of the Bolshevik party, this program was given a scientific form. Tasarski is undoubtedly right when he says; "The most general science that is going to integrate 'experience', to integrate man and society, will be the 'universal science of organization' called 'tectology'. This science will be created by proletariat from big industrial establishments as a transformation and summary of its 'experience'. So, it will be a proletarian science, a manifestation of proletarian culture".[12]

THE BASIC CATEGORIES OF TECTOLOGY

Complex, or organization, form, that is, "the total body of relationships between elements", is the central category of Bogdanov's science of organization.[13] Every complex which is distinguished as such out of nature's continuum for research or pragmatic purposes is composed of elements. "Elements of all organization, of any complex studied from the vantage point of organization, reduce to activenesses– resistances".[14] For, the creation of a complex from elements would not have come about if the latter had had no specific propensities for this, that is, if they had not had the activeness that constituted the given complex; at the same time, various resistances of elements which make organization impossible or more difficult are also at play. This is a consequence of the existence of environment, for every structural organization of a complex is in every case a function

[10] *Ibid.*, p. 34.

[11] *Ibid.*, p. 49.

[12] J. Tasarski, "Drogi i manowce 'Proletkultury'" ["The Proletarian Culture Movement. Its Progress and Vagaries"], *Przegląd Humanistyczny* 1969, No. 5, p. 77.

[13] A. Bogdanov, *Tektologia*, vol. 3, p. 452.

[14] *Ibid.*, vol. 1, p. 73.

of the environment in which it occurs. Following D. Grille, let us put this in the following way:

$$U/F\,(E_1,\ E_2,\ E_3);$$

where U stands for environment, F for a complex, or form, E_1, E_2, E_3... for elements. [15]

Owing to the existence of activenesses–resistances we never have to do with a full organization of a complex. Organization is always accompanied by processes of disorganization, the aggregate result being a relative neutrality of the complex, a relative status of equilibrium. It should be strongly stressed here that, like anywhere else in Bogdanov's reasoning, here too environment, which works through mechanisms of selection, plays a pivotal part in channelling the complex's structuralization in a definite direction. "Every event, every hange can be considered from the standpoint of selection as the preservation, respectively multiplication of some activenesses, the consolidation and strengthening of some relations, the elimination, reduction, weakening or decomposition of others– in this or other complex, in one or another system. 'Environment' in the most general sense is always the factor of selection. For study, we usually isolate, separate some complex from among others, thus assuming that its preservation or decomposition, its growth or fall, depend on its relations with those other ones, on the extent to which their activenesses are balanced or outweighed by activenesses of the given complex, or conversely– on the extent to which they prevail and damage their ties". [16]

Considering the three-element relationship of environment–complex–elements ("activenesses–resistances") we can now define tectology's three principal problem areas:

- the emergence and formation of complexes;
- the viability of a complex (the system's internal dynamics);
- the decomposition of the complex (the crisis).

Before we proceed to a discussion of these three problems let us recall that the fundamental categories of Bogdanov's philosophy such as complex, organization, elements, selection, had been known already in empiriomonism. But there they were used to describe social perceptions of the world. In tectology, they acquire an ontological meaning in the pragmaticist sense we learned about before. Tectology also gives account of experience, insofar as experience here involves all nature and the practical interaction with it– the sum of energetic activenesses along with the resulting prosperity of human society. Designed by Bogdanov as the crowning as well as the extension of the knowledge accumulated so far, tectology selectively uses the detailed sciences, yet beyond its specific objects of research it seeks the

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[15] D. Grille, *Lenins Rivale. Bogdanov und seine Philosophie*, Köln 1966, p. 191.

[16] A. Bogdanov, *Tektologia*, vol. 2, p. 386.

most general regularities which are common not only to the sciences but to all nature. Nature, as a domain of actions, is irrational. Tectology, for its part, is to be an attempt at its empirical rationalization.

I. MECHANISMS OF FORMATION OF COMPLEXES

Complex-constituting elements are diverse or differently directed activenesses–resistances. A situation in which activenesses have the same direction, that is, in which they "overlap" and so tend to generate a structure, is called the "chain linkage" (*tsepnaia sviaz*) by Bogdanov. It occurs not only in nature where it enables such or other wholes to appear. All human activity is also based on it, and it is at all possible precisely owing to the existence of common links, connections or dependences which channel human effort in a definite direction. If no chain linkage exists– or if none is perceived at first glance– we invent it, thus formulating hypotheses which are subsequently tested by sience.

The process of tectological formation of components into larger complexes is pivotally governed by the process of ingression. Roughly, ingression means the activation, conjugation, moulding or updating of elements– the perception of their common "overlapping" aspects or properties owing to which they will join into complexes. A trivial example of this is the ingressive function of glue uniting two pieces of wood or the work of a translator who brings two different languages close to one another. Without ingression no fusion of components for the purpose of ensuring a "chain linkage" would come about. "Ingression is a *general form* of a chain linkage"[17] (italics added). Ingression is by no means identical with the organization of complexes. The latter can also organize themselves *via* other mechanisms, such as what Bogdanov calls disingression, that is, decomposition, separation of elements along lines of their previous activenesses. If in the course of ingression the sum of activenesses of elements is larger than their arithmetical whole, then disingression decreases the activeness of the elements of the whole leading in an extreme case to a full neutrality of the activenesses, to a full disorganization, to a decomposition (crisis) of the complex. Disingression is always the first phase of its decomposition but not always is it identical with disorganization. Its effect on the complex, which is closely dependent on the environment, proceeds by a stabilization of the structure through the elimination of unstable or useless elements which were previously conjugated with one another, Moreover disingression is proof of the noncontinuity, the separateness of elements, in the continuum of nature. To be true, there is no discontinuity in nature "itself" where everything is linked up with everything else. However, people, determined as they are by practical interests, isolate artificially, by means of disingression, some complexes from others

[17] *Ibid.*, vol. 1, p. 117.

(e.g., the artificial division of the globe into two hemispheres). The continuity of the world was noticed, already by Bergson, but his concept of a stratifying action of the human mind is, says Bogdanov, entirely wrong, because no such thing as an individual mind does exist. Man is marked by the brand of his class origin, that is, consciously or unwittingly, man voices its views. Bergson's concept of mind takes the form of collective class interest. Owing to technology and production—at different development levels—nature undergoes stratification and disingression, as complexes serving the survival of communities reproduce themselves. Cognitive complexes are a function of the former, and so talking of mind in isolation from actual social practice makes no sense.

Depending on new ingressions and disingressions, the complex's structure undergoes changes—deformations or crises, development or decomposition. In order to get into contact with one another, activenesses–resistances must carry certain tensions, a difference of potentials, or at least the simplest ability to react. Equal tensions are always identical with full disingression. A shift of tension for instance in a two-element relation, say in conjugation, may lead to a new ingression or disingression, depending on the complex's endurance and its relation to its environment. Science enables us to classify and measure these processes of internal energetization. "For modern science, 'energy' is a source of changes as well as their quantitative measure: *activeness which is perceived with the senses or intellectually* [...] As far as its 'tension' is concerned (temperature, potential, gravity degree, etc.), it is a *relative magnitude of changes which are possible depending on the given energy complex*"[18] (italics added).

As they act alternately in the formation and consolidation of the complex's structure, mechanisms of ingression and disingression are also an expression of the universal effect of selection. It is this mechanism, in the form of the environment's resistance, that creates countless "experiences", i.e. organizations of complexes in their dynamic equilibrium. From the tectological point of view, natural selection in the world of nature differs in no significant manner from class struggle or contests for posts, for in either case the purpose is the liquidation (the crisis)—through the disingression of organisms—of groups of interests or individuals to make room for new, better organized (better adapted) structures. In the object of selection there is always a foundation, that is, a place in which the factor of selection will always effect a change. Through the mechanism of selection the complex always tends toward equilibrium with its surrounding (environment) which is impossible to achieve in absolute form owing to the never-ending parallel changes in this environment. What the complex then faces is a loss of viability and a subsequent decomposition. What guarantees its persistence in a dynamic equilibrium with its environment is the growth in sum of its activenesses,

[18] *Ibid.*, p. 1347.

the predominance of energy assimilation over energy loss, of assimilation over dissimilation at the expense of the environment. We then are facing a case of positive selection. The opposite mechanism, which manifests itself in the release of energy into the environment, the predominance of losses over gains, is defined by Bogdanov as negative selection. Those "most elementary acts of selection occur in diverse processes of conjugation and disingression",[19] which is the chief mechanism at play in the formation of structures.

2. THE VIABILITY OF COMPLEXES. THE SYSTEM'S INTERNAL DYNAMICS

The greater, the complex's viability is, the more successful the activenesses–resistances in it are in resisting the influence of environment. However, a complex's permanence depends not only on the number of elements but also on the type of their organization, the way they are connected to one another, etc. You can say, following Bogdanov, that apart from quantitative viability it is possible to distinguish within a complex its system-specific viability and so, as usual, internal tensions are generated by multi-directed choices. A positive choice enhances quantitative viability, a negative choice curtails it, but a choice's positive effect is by no means rigorously equivalent to the system's specific viability. Some positive choices are basically conservative choices, and as a result they lead to a disintegration of the structure. Capitalism, for example, says the Russian philosopher, along with its economic growth (quantitative increment of viability) complicates and differentiates the social environment while technological progress itself does not reform society's structure. The gaps in it which arise from ownership forms are widening. This leads to a decrease in proportionality in assimilating external energy by society as a whole and so weakens its viability. The negative choice done by a majority of society begins to prevail over the positive choice of the capitalist class. This manifests itself in pauperization on the one hand, and in overproduction on the other. Structure becomes increasingly vague, especially since its points of contact with the extrenal world (environment) have many ramifications. "Fluidity can be characterized generally as irregular connections in different parts of the complex or as different conditions; the higher their regularity, the greater its 'coherence'", says Boganov.[20] When negative choice predominates, a coherent structure has greater chances of survival; when positive choice predominates, it is fluid, but for instance under capitalism the balance of choices is deepening with a predominance of negative choice and the structure's fluidity leads it to disintegration (the crisis). To be true, the effect of external environment differs from country to country: czarist Russia, a structure more coherent than the federal type of American capitalism, could survive, encircled as it was by enemies and waging wars, precisely owing to its "tough" change-resistant structure.

[19] *Ibid.*, p. 166.

[20] *Ibid.*, p. 209.

On the other hand, American capitalism with its fluid, open, and dynamic structure has a greater chance of survival, although nothing in the general message of Bogdanov's philosophy implies that this brand of capitalism should last forever.

Progressive choice, which enhances activeness but curtails the system's specific viability, along with regressive choice, which has the reverse effect (petrification of the system), although they are closely interconnected and mutually supplementary, are not fully symmetrical. This can best be seen in nature's tremendous waste in that it creates an enormous number of viable individuals but gives genuine survival chances only to few of them. The latter alone enhance the sum total of organizational processes. Organisms which perished constitute a necessary sum total of disorganization processes— a price needed to couple conjugation with disingressive processes.

"The viablity of a whole depends on the smallest relative resistances of all parts at any moment".[21] Because an element's resistance is also its activeness (a switchover in standpoint here, depending on the mode of research: from environment to element, or conversely), the law on smallest relative resistances is also a law on smallest relative activenesses. But the relative character of the complex's activenesses–resistances derives from their relational linkage to the complex's other activenesses–resistances. Let us cite Bogdanov's own example of this— a squadron of warships including one ironclad (cruising at 30 km/h), a destroyer (50 km/h), and a cruiser (40 km/h). This complex's lowest activity is 30 km/h. Their respective draught depths are 10 m for the ironclad, 8 m for the cruiser and 5 m for the destroyer. Lowest relative resistance is 10 m, below which the squadron disintegrates. Generally, according to Bogdanov, a complex's systematic viability can be defined by the law of least favorable conditions or the law of minimum. If one wants to strengthen a system's viability one should protect its weakest element, because under unfavorable conditions this element may become a source of the system's disintegration as a whole. The system itself tends to protect its own internal stability. Bogdanov cites the Le Chatelié principle, saying that a system in equilibrium undergoes an action which weakens any of the conditions of equilibrium, then processes resisting that action and tending to restore the state of equilibrium are generated in this system. The striving for what is but a theoretical condition of equilibrium, which is never attained in practice, turns out to be a function of the external pressure of environment (selection of + and −).

The law of minimum defines conditions needed to preserve the complex which, however, never lasts forever. Under the pressure of external conditions in the course of development the complex's internal structure may differentiate, its constituent parts becoming increasingly isolated from one another. In extreme cases, the complex even disintegrates. One safeguard against this

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[21] *Ibid.*, p. 178.

is the development of supplementary reactions. Thus, for instance, division of labor spurred the process of production, but at the same time the given form of social organization disintegrated more and more into individual households linked to each other solely by trade. The hardening competition in the market along with the division of organizational and executive competences, in turn, resulted in class struggle, that is, in a sharp disingression of society. But, says Bogdanov, society cannot disintegrate entirely as it is embraced by the world (the natural) ingression. Marxism, along with the ascending worker movement, both of which thrive on class struggle, also have a beneficial effect. These are powerful counter-differentiating factors which offset social tensions by the elimination solely of the class of organizers, that is, capitalists.

"The deeper the original differences of a system's complexes, the quicker should be its subsequent disintegration, especially the growth of contradictions, of disingresion between them".[22] The danger resulting from the system's internal differentiation is eliminated by its reconstruction (counterdifferentiation). This comes about most often due to the conjugation of the system's different parts. At the expense of forfeiting some activenesses, and spurred on by regressive choice, a regrouping of elements takes place, and a new whole begins to develop in result of this. Naturally, differentiation and counterdifferentiation are processes all the universe is subject to, and it is in this way the universe is continuously developing, and although it is constantly exposed to the danger of crises and indeed does undergo crises, it none the less does survive owing to built-in self-correcting mechanisms.

Let us look for a while at an interesting case of tectological self--correction, namely that of Hamlet. The young prince, with his noble record of martial gallantry, grew up in the spirit of knightly ideals, was trained in the soldier's trade (as an outstanding fencer, for example) as well as in the art of leadership. On the other hand, he was a sophisticated connoisseur, a subtle aesthete enjoying the arts and spending his time with books. Under the impact of external developments (his father's murder) Hamlet undergoes a vehement negative choice leading up to volitional disingression: elements constituting his personality, or, more properly, his dual nature, dissociate. On the one hand (his soldier's attitude), he wants to kill his stepfather. But this is prevented by the spiritual ideal of love (the aesthetic attitude) directed toward Ophelia and Gertrude, who „objectively" are among his enemies. The dissociation of Hamlet's personality manifests itself as madness. It would probably end in a catastrophe, were it not for the mechanism of counterdifferentiation. Hamlet's two natures mix with one another (conjugation), in result of which a new spiritual quality– that of a fighter for values, for ideals– arises. Hamlet dies because of external conditions, but this

[22] *Ibid.*, vol. 2, p. 254.

will be of no importance any more because his work will be undertaken by his successor (Fortinbras).

The development of complexes by way of systematic differentiation is possible owing to two particularly important mechanisms. While ingression and disingression work in the area of statics, the other two are clearly developmental in character. Egression and degression are meant here. Egression (from the Latin word meaning "to step out of rank") is essentially a concentration of definite activenesses, causing a centralization of the system around its most active part (e.g., the nervous system and the rest of the body). Naturally, when we are facing a system one part of which is dominant over the others, then there must be most diverse relations between them, while relations with the environment are irregular throughout the system. *Via* a balancing of all choices, this leads to a dynamic transformation of the original complex; internal differentiation may even lead up to the emergence of two mutually competitive centers. But since the rest of the complex cannot possibly service all of them simultaneously, the whole affair ends in a crisis. Needless to say, Bogdanov considers machines to be powerful egressions. Owing to the machine, man "rallied" all nature around himself thereby overcoming the biological limited character of his body. The whole world thus became a "human" world; while this aspect of the world had an epistemological meaning in empiriomonism, tectological egression is an expression of a technologically oriented anthropocentrism. Machines permit highly productive egressions, while the proletariat's spirit of brotherly cooperation forestalls an unjust distribution of products which are results of a planned "distribution" of nature in acts of its appropriation.

The opposite mechanism, degression (from the Latin word meaning "to step down"), petrifies the system, providing it with a skeleton. What is it needed for? Tectological progress, argued Bogdanov, which relies on versatile plasticity, leads to a growing complication of organizational forms. This, of course, has a positive effect on the number of possible combinations. However, there is also an undersirable side to it—degression enhances the whole structure's fragility, making the system more vulnerable. This causes an intrinsic contradiction, because growth of organization in one direction weakens this process in all other directions. A stabilizing mechanism is needed. The degressive part, which is the stabilizing element, sort of separates itself from the complex's internal dynamics, while making it at all possible. Thus, for instance, "symbols record and protect against disintegration the vivid plastic fabric of mental pictures, in full analogy to the skeleton which petrifies the vivid plastic tissue of colloidal proteins of our body".[23] Language, which records and channels human experience, has a special part to play in this, being the ideological expression of productive activeness. But it should be remembered, the Russian philosopher goes on to say, that as

[23] *Ibid.*, p. 363.

forms of degression, "ideological forms [...] in the process of development are more conservative than their socio-productive foundation – which is the more plastic of the two parts of the social system; ideological forms persist even when that part has long outgrown it".[24] With this very simple proposition Bogdanov "resolved" the difficult problem of what are the mutual relations between the historical production by people of opportunities for the preservation of human lives and the universal validity of their symbolic behaviors, a question Marxists have never been able to resolve. Bogdanov's philosophy itself strongly implies that all forms of what is called ideology, especially language, are closely determined by the level of production, and so it makes little sense to talk, say, about any natural continuity of some language in time. If at all, we ought to speak of "several" languages depending on the level of material production any given nationality has reached. This comes close to the notorious theory of N. Marr, and is in fact untenable. On the other hand, the belief that degressive ideological forms, above all language, always lag behind the level of production is obviously in contradiction with Bogdanov's own statement that „existence and thinking are essentially the same thing". It is a case of either–or, then; either existence, in the Bogdanov sense we are already familiar with, "precedes" the forms (complexes) of communication between people, in which case it is surprising that people should make their lives unnecessarily difficult using an "obsolete" code, or else production engineering generates communication codes while natural languages gradually cease to be different from man-made languages; it is to be surmised, by the way, that with time language in proletarian culture, too, will be different. It should be observed that Bogdanov drew his linguistic knowledge chiefly from Louis Noiré.[25]

Egression and degression are not just mutually contradictory. Often enough a structure's centre is less plastic than its peripheries. Either the two mechanisms operate parallelly or else they refer to different activenesses which then should be identified and distinguished from each other. "Worldwide egression is progressing, gradually subordinating nature to mankind; worldwide degression records every step in this process, circumscribing and stabilizing it in space and time".[26]

3. THE DISINTEGRATION OF COMPLEXES (CRISIS)

A systematic or abrupt deformation of a complex's internal equilibrium may ultimately result in violating its tectological boundary, that is, in disintegration. Bogdanov described such a state of things as crisis. Most generally, a crisis occurs wherever a new form appears in lieu of a previously existing one. Like all notions used in tectology, this latter too is relative,

[24] *Ibid.*, p. 377.

[25] Cf. D. Grille, *Lenins Rivale...*, pp. 79ff.

[26] A. Bogdanov, *Tektologia*, vol. 2, p. 383.

dependent on the studied—and hence artificially isolated—environment. To Bogdanov, all the dynamics of nature, the richness of its energy transformations are a permanent string of crises; owing to continual disintegrations, ever new forms arise giving way to subsequent ones, and so on. "The notion of crisis is of universal validity for tectology. It is a vantage point applied to whatever occurs in experience; changes take place, and every one of them can be interpreted as a difference of form between the initial and the terminal states".[27] It follows that the mechanisms of development and dynamics of forms (ingression, disingression, etc.) we considered up to now were forces acting in a homogeneous natural domain. That domain is the crisis of continually organizing forms of experience—of the world. So, we can safely say that in its most profound methodological reflection tectology wants to point at the crisis as a fundamental mechanism of development in nature's energetic metabolism. However, although he was not very reticent about the particular tectological mechanisms he envisaged, Bogdanov spoke about the tectology of the "base" rather modestly; both "crisis" and "experience" are nowhere to be found in any accurate explorative description. There are two crises, then. One is called the *C* crisis (for conjugation). It takes place when full disingression of form is either halted or abolished; what happens is simply the halting of differentiation as a new complex is being created. The other type of crisis is called *D* crisis (for disjunction), which consists in the creation of full disingressions and new boundaries of complexes. The two mechanisms are separated from each other only in theory, for in reality they always go along each other. Always, too, *C* is the starting point, while *D* is the final phase. All human work, for example, is in the view of Bogdanov nothing but a never-ending string of *C* crises. Its outcome (human activeness + complexes of nature) is a certain condition of equilibrium (new form = product), including the concluding *D* crisis corresponding in type. It is difficult to withstand the temptation to quip at this point that tectology liberally sheds assurances and sweeping generalizations in which breadth of vision often vies for the better with epistemological futility.

TECTOLOGY AND DIALECTICS

The above presentation of the main ideas of tectology which, in Bogdanov's own exposition, makes rather dull reading as he supplies it with a host of meticulous and all-too-obvious examples, gives readers an idea of what Bogdanov thought about dialectics. He granted it a certain value on account of its resusciation—as he put it—of the "contradictions" which are inherent in notions as well as objects; albeit we have already pointed out that Bogdanov criticized precisely Marx for using the formalistic Hegelian method. It should be pointed out in this connection that although the Russian's philosophical

[27] *Ibid.*, vol. 3, pp. 497f.

scope was basically different from Hegel's in that he subscribed to diametrically different intellectual orientations, Bogdanov had an exceptionally low opinion of Hegel, an attitude he seems to have borrowed mainly from Engels. So, Bogdanov shared all positivists' typical aversion to Hegelian speculation.

Tectological dialectics – a term coined by Bogdanov himself – views its subject inseparably from the environment, which is unlike formal tectology. The often-quoted three phases of Hegelian dialectics, simplified into the Engelsian grain or boiling water (cf. the *Anty-Dühring*), are reinterpreted by Bogdanov through what we already know as a cycle of crises. In phase one, an organizational act is determined by the *C* crisis (conjugation). Phase 2 is the *D* crisis (disjunction) along with the derivative and subsidiary *C*-type crises. Phase 3, finally, ends in the formation of the system as a whole on the basis of the *C* crisis with derivative and subsidiary *D*-type crises. In the first, conjugative phase, then, some external factors are incorporated into the system; in the second phase the system begins to differentiate along with concomitant "contradictions" (a disorganizing moment). In the third and final phase, the system again consolidates and the given phase of development ends. The resulting complex then undergoes a new cycle of crises.

Sickness, for instance, is described in this way by Bogdanov:

* *C* crisis – bacteria invade the body,
* *D* crisis – sickness develops,
* *C* crisis – recovery or death.

"One thing should be regarded as a real contradiction, namely the struggle of concrete forces, of opposite activenesses",[28] Bogdanov underlines. So, when Engels wrote about the dialectics of motion (a body, at any given moment, is in one place and in another, that is, it is, and is not, at the given place), then this classic of Marxism essentially differs in no sense from Zeno of Elea. What both Engels and Zeno in fact did was to lay bare the self-contradiction of two notions: "to be there" and "not to be there". They did not touch upon the contradiction or opposition of real forces. But what does the contradiction between notions really mean if not idealism at its purest? This is, says Bogdanov, what comes of translating the realness of physical experience into the confusing vocabulary of Hegelian terminology.

THE TELEOLOGY OF TECTOLOGY

In his energetistic mechanicism Bogdanov reconstructs, in a sense, the position of Aristotle, to whom the form of things simply amounted to energy. Form, as the essence of being, was so precisely on account of energetizing potential of matter. Only the *materia prima* is truly pure, but we do not know it. In Bogdanov's theory, too, there is no "matter" at all, because, to

[28] A. Bogdanov, *Filosofia...*, *op. cit.*, p. 190. See also: K. M. Jensen, *Beyond Marx and Mach. Aleksander Bogdanov's Philosophy of Living Experience*, Dordrecht 1987.

use Heidegger's words, "the essence of materialism is not in the proposition that everything is matter alone but rather in the metaphysical definition of it which implies that every being manifests itself as the material which is the object of work".[29] Matter which manifests itself in the process of work is, in Bogdanov's philosophy, a series of successive energy levels which, as L. Kołakowski pertinently observed, result "from a reduction of human beings to animal forms of the assimilating world"[30] Energy viewed not as substance but as incessant natural change involving people and observable and measurable by scientific methods, is basically the indestructible *eidos* of the universe by virtue of the law of its preservation. No wonder, then, that "the mechanistic point of view is the only organizing point of view in victories in the bid to overcome science's diversity".[31] This proposition involves a certain awkward implication Bogdanov never seems to have fully realized. Viewing the universe as a single huge mechanism, Bogdanov actually does not—despite what a cursory survey of tectology may suggest—study the mechanism of individual natural complexes but the dynamics of change behind it. Energy, according to Bogdanov, is not substance. What he is really interested in are not parts of mechanisms but their mutual cooperation in their full uncountable variety, along with his desire to reduce it to a few fundamental laws. While mechanicism is his point of departure, the dynamism of energy complexes is his real subject-matter. Naturally, the best methodology he could think of for this purpose was physicalism, which Bogdanov interpreted as "abstract analytical induction". "It is the abstract method alone that can yield true and universal tectological laws", whereas "tectology in its methods combines the abstract symbolics of mathematics with the experimental character of the natural siences".[32]

This, of course, is a greatly exaggerated claim, because no rigorous methodologist of the natural sciences would endorse tectology's common sense assertions. On the other hand, though, it should be acknowledged that the Russian philosopher's science of organization was an attempt to update Marxism, to bring it closer to latest findings of science.

Stephen Cohen says that "by the early 1900s mechanical equilibrium models (especially dynamic ones) had spread from physics and biology to the social sciences [...] and then, as today, equilibrium theory was an important part of Western sociological and economic thought".[33] The

[29] M. Heidegger, *Building, Living, Thinking* [Polish translation], Warsaw 1977, p. 102. English translation: *The Alienation of Reason.*

[30] L. Kołakowski, *Filozofia pozytywistyczna (od Hume'a do Koła Wiedeńskiego)* [*Positivist Philosophy, from Hume to the Vienna Circle*], Warsaw 1966, p. 299. English translation: *The Alienation of Reason.*

[31] A. Bogdanov, *Tektologia*, vol. 1, p. 51.

[32] *Ibid.*, pp. 88, 89.

[33] S. Cohen, *Bukharin and the Bolshevik Revolution*, New York 1975, p. 118. See also: T. Susiluoto, *The Origins and Development of Systems Thinking in the Soviet Union. Political and Philosophical Controversies from Bogdanov and Bukharin to Present-Day Re-Evaluations*, Helsinki 1982.

"Bogdanov terminology" used by Bukharin in his *Theory of Historical Materialism* is, according to Cohen, similar in many aspects to Pareto's formulations from his *Trattato di sociologia generale*. This terminology is also close to the vocabulary of modern sociological theories.[34]

Above all, however, tectology, Aristotelian in spirit as it is, had to have its entelechy. This was "the *organization of productive forces and means of production* into a planned and functional system: it is the organization of *people and things into a purposeful whole*",[35] said Bogdanov (italics added). Nature's energy potentials are realized when people take them into their hands. The from-creating social activeness incessantly produces new configurations of energy complexes which promptly become involved in an evolutionary interplay with the environment of their makers, whereby the environment itself is incessantly undergoing internal stratification, strengthening its progressive elements and eliminating weaker, regressive ones. The adaptive functionality of the entire social structure and its productive creativity is thus constantly in a state of dynamic transformations, finding its most conspicuous expression during the past century in the deepening class differentiation along with the struggle of classes for the products of the division of labor. The anarchy (disingression) of society's class structure, in the light of tectology, will give way to the only conceivable outcome of the social process of labor, namely to "the centralized planned distribution of products in accordance with production organization". This, too, is "the *true tectological solution of the problem set by the epoch*"[36] (italics added).

But, does tectology indeed stand up to this task? If we forget Bogdanov's social visions for a while, we may find we should above all agree with one praxiologist today who says "the inventory of generalizations furnished by the *Tectology* is rather poor – they are almost exclusively platitudes".[37] In their fundamental presentation, the main ideas of Bogdanov's science of organization are trivially simple: the given whole (complex, problem, etc.) must be considered in relation to its environment; components of this whole join together or fall apart under a necessary mediating function; the whole usually comes into conflict with its environment which modifies its viability and directions of transformation; the system will begin to lose its viability in its weakest link; some centers inside the system "harden it up" or activate it; every system is inevitably doomed to change, becoming increasingly "geared" to its environment; as a result of one system's crisis (disintegration) a new system emerges, and so on. These are all generalities which are both true and accepted in good faith by Bogdanov, because the desired "organization of people and things into a purposeful whole" does look quite suspicious in their light. Tectology will not tell us how the organizer-execu-

[34] *Ibid.*, p. 119.

[35] A. Bogdanov, *Tektologia*, vol. 1, p. 20.

[36] *Ibid.*, vol. 2, p. 306.

[37] T. Kotarbiński, *Wybór pism* [*Selected Writings*], vol. 1, Warsaw 1957, p. 393.

tor, or worker, is able to control production thanks to the machine in a "planned and functional" manner. Even if we accepted the ridiculous contention that the entire proletariat, endowed with socialist teaching (tectology), is the general planner, we still would not know which lines of production should be chosen, which human needs should be met before others, or which should be recognized as second-rate problems. What should be done if the production of some goods is incompatible with the production of other goods? Should all produce everything or should there be productive specialization, which would be conducive to divisions inside the collective? What should be done to prevent the emergence of leading elites either due to better education or because they concentrated initiative and competences? In one of his novels (*The Red Star*), Bogdanov presents a perfectly organized society on Mars whose rhythm of work, place and time of existence are determined by a "central statistical mechanism". Working people are supplied by it with information about who is to work where, for how many hours, and what jobs will have to be filled in the future. Bogdanov thus presumes the existence of some kind of super-brain. Who is to become such a super-brain under conditions existing on Earth? And, does not this proposal, instead of the desired liberation of labor, mean its totalitarian enslavement? It is of course risky to draw examples from literary fiction, from a book Bogdanov himself called a utopia. But the vision of an ideal Marsian society can certainly be recognized as the author's *porte-parole* when, in his time, he failed to see any possibility of getting his views to materialize on Earth. Was it not utopias which for centuries used to be treated as an expression of hope and faith in the desired social order? In his *Encounters with Utopias* (in Polish), Jerzy Szacki gives an eloquent account of the part utopias played in endeavors to make the existing world a better place to live. But in that otherwise excellent book you will find no discussion of Bogdanov, a philosopher whose ideas often might vie for the better with Fourier's. What else if not this is the proposal for a "tectological struggle against ageing" by way of transfusions of fresh blood which, as Kołakowski put it, "was for Bogdanov one of the techniques proving mankind's biological community and fitted well into his 'collectivist' view of the world"?[38] Transfusion, incidentally, was the cause of Bogdanov's own death.

Equally debatable is the internal differentiation of a new social complex—the collective community of workers. In *Empiriomonism* the whole thing was summed up by the single statement that "one society will remain, with one ideology".[39] But from the *Tectology* you will learn that "collective society is a highly differentiated system and between its components or different

[38] L. Kołakowski, *Główne nurty marksizmu* [*The Main Currents of Marxism*], vol. 2, Paris 1977, pp. 445f.

[39] A. Bogdanov, *Empiriomonism*, vol. 3, Sankt Petersburg 1906, p. 139.

areas of life new and new differences will keep arising. Just what differences those will be we are at this stage unable to say in a scientific sense; all we can say is, they will not be differences of legal status, or of class, or of economic status, because all these are precluded on account of the above-given explanations. For new tasks, there will always be new methods".[40] We thus learn nothing about the collectivist community's internal dynamics, which should probably be governed by the same kind of fundamental laws as previous social structures incorporated into the circulation of tectological dependences. Were this untrue, tectology would be valid only for precollectivist communities, but nowhere in Bogdanov's texts will you find the reservation that the "universal science of organization" is limited in this sense. In particular, we will not be told why an all-embracing collectivist and productive organization which abolishes all existing antagonisms and social divisions and leads to a new friendly and comradely equality of labor (*tovarishcheskoie ravenstvo truda*) should result in the disappearance of egoistic desires on the part of the collective community's members? After all, internal tensions and differences in activenesses–resistances of social existence in its relation to the surrounding nature were up to then a stimulator of development, especially of the means of production so dear to Bogdanov. Driven by selfish interests, people admittedly exploited each other mercilessly, but– in keeping with the mechanisms of natural selection, as Bogdanov never tires of emphasizing– this only reinforced processes of internal differentiation and complication (through crises) of mankind's energy potential, leading production engineering to higher and higher levels. Would, then, "machinism" mark the end to the social structure's internal dynamics as members of the collectivist culture were melting into a perfectly anonymous mass, which could be distinguished only depending on the instrument which is applied? Bogdanov, incidentally, was aware of the danger of unification of workers, pointing out that ties inside a collective strengthen on the ground of homogeneous type of work but that individuals count in this not as anonymous factors but as "individualities" (not, of course, in the sense of capitalist, anarchistic individualism). This matter then surfaced in Bogdanov's polemic with A. Gastev, a top member of the Prolekult.

As said before, tectology regards every part of matter– man included– in the effigy of energy, though in different forms. Apparently, then, the direction of change of matter– since it is impossible to grasp all the factors which take part in shaping matter– is in fact fortuitous, or no definite purpose can be detected in the interaction between nature and society. Their dialogue, mediated by the developing tools and also generating a secondary internal societal stratification, which Bogdanov calls culture, is not the implementation of any universal plan of history whereby society moves necessarily from primordial culture to collectivism. Such fatalism would be

[40] A. Bogdanov, *Tektologia*, vol. 2, p. 306.

essentially alien to the activist orientation of Bogdanov's philosophy the polemical point of which, as will be remembered, was directed against Plekhanov's objectivist and deterministic brand of Marxism. Man is a *homo faber* in his energetic forms. He transforms nature and perfects his tools whereas the successive forms of the culture he produces exist "side by side" with one another, as a better-adjusted organ supersedes a worse-adapted one. Having said this one might conclude, then, that nature itself, as the domain of human activity, would be "fortuitous", a perfect kind of evidence of this is the discontinuity of human culture, the absence of "perpetual and universal truths", the derivability of products of the human mind (science, the arts) from the level of technical instruments of production. The point, however, is that Bogdanov right from the beginning of his argument, and also voicing what were certainly his desires – a fact rather incompatible with scientific description – consistently reduced nature's energy dynamics to indicating its purpose. This also vindicates the basically Aristotelian interpretation of his work. Tectology is not only a science of changes of the universe. These changes have their terminal point, which is a point of maximum organization. "There is an *objective* purpose in nature. This is a result of the world-wide struggle of organizational forms in which 'purpose-less' or 'less purposeful' forms disintegrate and perish, while 'more purposeful' ones endure; this is what natural selection actually is"[41] (italics added). These words were written by an author who promptly added that the notion of "purposefulness" was just a metaphor. But this did not change the fact that Bogdanov "imparted sense" to nature's energy dynamics in that he gave it a teleological interpretation. Let us just point out here that this was by no means a new idea. The entire Aristotelian formation of Arab philosophers (Avicenna, Averroes), and, before them, Strato, Alexander of Aphrodisia, later David of Dinant, and finally Giordano Bruno, all "entertained the notion of matter-in-process, matter which itself has different forms and is constantly capable of further development; whatever new arises in the world, does not arise due to the action of any force outside the world but is a disclosure of potentials inherent in matter itself. There is no distinction, then, between matter and form, but forms are overt or hidden qualities of one substrate, the *natura naturans*".[42] This, too, is the fundamental message of tectology in which every experience is some organization which supersedes a worse-organized experience; this is construed to mean that the existing state of matter must, in virtue of its built-in necessity, move toward a condition closer to the ideal, i.e. to the full organization of this matter, into a state of ideal harmony, of fulfillment.[43] From the observation that

[41] *Ibid.*, vol. 1, pp. 66f.

[42] L. Kołakowski, *Główne nurty...*, vol. 3, Paris 1978, p. 435.

[43] "The chief sense of the notion of progress is the same: the growing fullness and harmony of consciousness [...]. Since social life is reducible to the inner life of members of society, the idea of progress in its essence is the same in this respect too – increasing the

everything is linked up with everything and that everything changes– the most trivial intention of tectological dialectics– the Russian philosopher derives his thesis that this process fortunately had an immanent logic, i.e. that previous transformations of social energy in history had served some purpose. In his *Empiriomonism* he wanted to demonstrate that cognition is a function of biology and of interhuman context. The *Tectology* indicates that, regardless of the level of cognitive organization of experience, nature itself, along with the multiplicity of operations done on it, are bound to lead up to a situation in which, theoretically, no transformation of environment, and thus of human interactions, will be necessary, unless you recognize as such routine repetitions– the seasons of the year, for example. If the desired "proletarian culture" is that culture in which supposedly "the organization of people and things into a purposeful unity" is achieved, then indeed no further possibilities of transformation of that totality are in sight. This is a condition of things Bogdanov seems never to have been able to grasp, one which is impossible even on the ground of tectology itself. Tectology presupposes incessant dynamics and development in the evolutionist sense. No sooner will the order of things be brought into harmony with the order of people than stagnation, motionlessness, passivity ensue. It is not surprising, then, that Bogdanov has little to say about the internal stratification of a collectivist structure at the moment of fulfillment. We can, however, imagine that this marks the end of the development of the universe, and hence the end of human culture.

The above reasoning can be countered in the following manner. Proletarian culture is a mode of social organization such in which the worker, owing to the machine, is fully sovereign over the material he works, and at the same time no kind of exploitation of his labor as known from history takes place because– yes!– all are workers, and it is almost impossible to imagine a worker to appropriate the effects of efforts made by another worker. In such a situation, the colossal means of production lead up to an unheard-of dynamicization and differentiation of complexes of nature. Nature furnishes enough energy enabling the collectivist community to live in affluence, while the community's members themselves, freed from their concern about survival, unfold their "cultural" demands in an unbridled manner, and differentiate solely by personal interests, abilities, and initiative. The social organism, then, differentiates internally, but only within its own framework, because the obligation of differentiation has been taken over by the machine. To this, one can only reply that it is tectology that provides for no specifically human

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fullness and harmony of life; it should only be added– the social life of people". A. Bogdanov, *Co to jest idealizm?* [*What Is Idealism?*], Warsaw 1906, pp. 10–11. This is one of Bogdanov's first studies, the original version of which appeared in the collection *Iz psikhologii obshchestva* (*statii 1901–1904*), Sankt Petersburg 1904. Obviously, all stages of Bogdanov's philosophy are guided by the same idea.

differentiation. The level of organization once achieved has a uniform structure as long as it is not affected by a crisis and thus brought to change. So, it is impossible to bring about a situation in which, while collectivist culture still persists, one part of it, specifically the man–nature relationship, should remain unchanged (actually, no such relationship exists any more, for it has been superseded by the machine–nature relationship, a clearly preposterous idea), whereas another part, namely the man–man relationship, should tend to change. This would inevitably bring about the disintegration of the whole, but then Bogdanov does not tell us just what would replace proletarian culture. Proletarian culture, as will be remembered, is the crowning of mankind's history. A similar conclusion is reached when we assume that from the standpoint of social production people are indistinguishable from one another whereas complexes of nature continue to differentiate under the pressure of machinism. Such a state of things could not go on for ever— all along by virtue of Bogdanov's own assumptions— and there would be no good reason to resolve it. In either case, one arrives at doubts which cannot possibly be resolved.

We have already pointed out some peculiarities of the collective organism. How much Bogdanov was pervaded by a doctrinaire faith in a "planned and functional" total organization can be seen from the fact that he ignores as prosaic issue as feeding the proletariat. Nowhere in his work does he say a single word about the role of the peasantry or about what is ultimately a very fundamental kind of production, namely of food. This charge, naturally, can be countered with the reminder that Bogdanov was concerned with a new, industrial kind of civilization in which the problem of food would already have been resolved. But in fact it is nowhere said just where food should come from, if proletarian culture knows no other tools apart from machines, or any other occupations and land is no more than a source of minerals. It looks as though Bogdanov, like Marx, regarded the peasantry as a reactionary class which will have to disappear sooner or later. Yet, this does not resolve the problem. It seems that, according to Bogdanov, the ideal is in the industrial production of food, the way Martians of *The Red Star* do this using "radio-matter" as their base material. But there is no indication anywhere in his works to tell readers when, or at which place on Earth, our tectologist thought such a synthesis would be feasible.

His faith in mankind's technological progress, which, being itself a form of shaping the matter of human work, sort of automatically generates equitable social relations, brings Bogdanov surprisingly close to objectivist and deterministic interpretations of Marxism. Let us not be bothered by vocabulary Bogdanov uses in distinction from Plekhanov's standard terminology. But they two actually wanted the same thing— namely conditions to emerge for power to be taken over by the proletariat (Plekhanov) or by the organizer-executor (Bogdanov). While "the father of Russian Marxism" fumed

while reading *Empiriomonism*, because he suspected, with or without good reason, that this philosophy justifies theoretically the political activation of the Bolsheviks planning to reach for power "in the manner of Blanqui", he would probably have no serious objections to tectology; productive forces (or, according to Bogdanov, growth of organization) will automatically bring the whole story to a successful conclusion. The epistemological activism of empiriomonism imperceptibly changed into a teleological interpretation of nature and humanity. The intended "critique of the practical reason" of Marxism was hopelessly drowned in the causality of nature, in its unchanging laws covering all of human culture.

"One more circumstance should be noted in connection with the history of Russian revisionism. Precisely because Russian Marxism and the Russian Social Democratic movement emerged with no connection at all with the worker movement, and because both were purely intellectual in their initial stage, Marxism in Russia took a much more doctrinaire and fanatical form than in the West, where the substance of the doctrine had incessantly to be submitted to the test of reality of the worker movement".[44]

This "general theory of organization" was born more or less unavoidably from a faith Russian Marxists had in the historical determinism of Marxist productive forces. The socialist worker movement– next to nationalism, the other great idea produced by the 19th century– arose at first in the form of economic struggle against the deepening pauperization and anarchization of production. It then transformed into a significant political force. But in order to develop its social uniqueness in full, it must also create its own independent culture, says Bogdanov. You will find no specific definition of culture in Bogdanov's work. As usually, here again "culture boils down to the total body of methods and means of organizing the social life of people".[45] Its three levels– technology, economy, ideology– attain the highest level of organization under socialism which, on account of being the epoch of highest organization, can be called cybernetical. But Bogdanov's belief expressed there that "planned organization" implies creativity, which in tectological vocabulary is called a "combination of parallel elements of experience", is incomprehensible.

Let us observe, in conclusion, that the above analysis of tectology and its consequences finds confirmation in an examination of the logic of the author himself. Bogdanov is known to have based his reasoning on "experience" and "organization", yet he nowhere analyzed these basic categories of his philosophy (for which S. Brzozowski justly chided him). Let us therefore point out the main argument of the author of *Tectology*:

(1) Social experience (nature–man) is the organization of complexes.

(2) Complex is the organization of elements.

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[44] L. Kołakowski, *Główne nurty...*, t. 2, p. 383.

[45] A. Bogdanov, *O proletarskoi kulture (statii 1904–1924)*, Leningrad 1924, p. 317.

(3) Element is an activeness–resistance.
(4) Activeness–resistance is energy (conducive) to change.
(5) Change is crisis.
(6) Crisis is a new organization of complexes.
(7) Organization of complexes is social experience (nature–man).

To put it differently, social experience is organization of complexes, while organization of complexes is social experience. To the possible charge that not every organization of complexes is social experience (e.g., organization within nature itself), we can reply that, according to Bogdanov's sociocentrism, there is no such thing as nature itself. All change in nature takes place within the frame of reference of "the human notion of the world" (Avenarius), which is the science and social practice Bogdanov so adores.

Thus, the entire concept of tectology, and, before it, that of empiriomonism, appears to rest upon a tautology. Is this what mankind's cultural *parousia* is to amount to?