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Technological Utopianism in the early USSR,
and what does that mean for us now

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Book review essay


and


Abstract

Since the disastrous results of Stalinist plan economy on almost all emancipatory fields the Bolshevik revolution tried to accomplish, technological utopianism is hardly a theme in socialist theory. However, the technological advances enabled many agricultural, societal and communicative achievements, which raise worldwide (uneven) welfare, as well as helped many democratic emancipatory movements. This essay reviews two books on the early enthusiastic phase of Russian socialism, were hopes, dreams and experiments dovetailed with a trust in the benign role science and technology will play in changing the world to the better.
The first book by Josephson (2010) eloquently reviews the downturn of the bureaucratic institutionalised equation of technology with progress. The second book by Krementsov (2011) deals with the utopian ideas of Bogdanov in his dream to collectivise people: socially, culturally and biologically.
Both books challenge utopianism but, more importantly, are well written studies we need for present-day reflections on the role and use of science and technology in future emancipatory developments.

Keywords

Science, technology, utopia, socialist development, USSR
Introduction

In this review, we discuss two books on the role of technology in building socialism, each written by a well-known historian of Science & Technology. Paul Josephson wrote an insightful, and frightful, description of technological utopianism from the early USSR, via the Stalinist era, to the GDR and North Korea. His main concern is the danger of large-scale technological developments, independent of the social and ecological context. Reading the well-written chapters, sometimes with laugh, the reader realises how stupidly and horribly things can go. However, we have to realize that it is, after the facts, easier to blame bureaucratic dictatorship than to develop a concrete policy for wholesale economic development in backward and poor regions, as the dramatic situation in large parts of, say, the Indian peninsula shows.

In his book on Bogdanov, Krementsov places Bogdanov, who had training as a medical doctor, carefully in the history of blood science (haematology) in Russia and the USSR. The complex and multifarious character of Bogdanov is an excellent case study for the painful discussion on the tensions between political emancipatory goals and the application of available or to be developed technologies. Both books positively add to the vast literature on the history of science & technology in the formerly USSR. Hence, both books are important sources of information and deserve careful study. The central issue in this review will be to what extent do these books help to develop insights in the role of technology and its claims on achieving a full fletched utopia, in actual discussions on Marxism. The historical record is forming a permanent mirror for our own activities and vistas.

The study of science & technology is needed more than ever. Not only as a descriptive activity to learn what actually happened in the deteriorating world of revolutionary optimism towards Stalinist type dictatorships, but foremost as a way to understand better the mutually determining factors between a desire to have a humanist democratic society and the determination society imposes on possible technological developments, and, importantly, vice versa. This issue is presently clearly on the table as we experience today the tension between the democratic communication explosion enabled by digital technologies and the frightening exploitation of the same technology by the major secret intelligence services. The easy reaction could be, and is often expressed, that technology is neutral and differently applicable as a function of the political regime, from military dictatorship to idealistic communes. Unfortunately, present-day nuclear technology is not safe under workers-control and we don’t know yet how the transformation to a future of solar energy as the basis of production might come about though perhaps with unpleasant surprises.
Why read on the history of science & technology in the former, co-called, socialist countries?

At the present juncture, we are confronted with the inescapable understanding that emancipatory progress and the development of a new socialist outlook is a complex and intertwined problem. Through the discussions on political activism in the fields of feminism, ethnicity, and colour, it became crystal clear that the hopes for the automatic abolition of societal oppression and exploitation after the socialist revolution are simplistic. Unfortunately it also became clear that the emancipation envisioned in mature socialism cannot pre-develop within a capitalist society. The neo-liberal hegemony shows how individuals are driven into more-and-more, alienated, isolated and egocentric behaviour and how collectivistic and communal activities rapidly decline, as exemplified by the more-and-more structural weakness of trade unions, political parties and groupings, as well as romantic collectives and initiatives, including the Occupy movement.

On top of all that, globalization makes local collectivist experiments almost impossible. Thus, seeking a new socialist outlook, we need to develop new global notions about democratic struggle as well as about the programmatic demands on how structural steps are to be made. In that sense, the programmatic and concrete demands to be put on the table, say, in those countries witnessing the short co-called > Arab Spring=, face the same challenges for building a non-capitalist society in a developing country as the revolutions we have seen in, e.g., Russia (1917), China (1949) and Cuba (1958). There is more at stake than the existence of organised parties, strong trade unions, and peasant organisations. It is common currency to speak about >transitional programmes= or ‘transitional periods’. They have two ends; where do we start and what is the moving target we are heading for. At the beginning, following the important developmental psychology school of Lev. S. Vychotsky, a learning process starts in the zone of proximal development. This means that we have to “hook up” at the level of understanding and experience of the learning subject. Otherwise, the further reach goals will not be understood in their essence. So, for a political, as well as for a technological, education we have to appreciate the actual phase of development and needs, as starting point for new vistas. The close resemblance of Vychotsky’s to Lenin=s educational writing style and, for instance Trotsky=s notion of a >transitional programme= is clear (Au, 2007). We are, and as were the Bolsheviks, educated and trained in a system that we want to overcome, though we can only try to forecast a new non-capitalist future, based on what we, dislike, like, and want now, as we have no teachers who know better. The Lenin-Bogadanov discussion on proletarian education is an example of this problem and well described in depth by Sochor (1988).

In this discussion, the role of the party, and in particular the party intellectuals,
before and after a revolution is central. The other end of the transition entails the development of vistas for a new society grounded in fundamental humanistic and democratic notions, given due credits to what went wrong and what did work under capitalism and why (the A planned economy of a Walmart surpasses everything we have seen on consumer services than what the leaders of the Russian revolution could ever have dreamed of).

Democratic notions that are themselves in the making after a socialist revolution will have new forms. In the post-revolutionary period not short term goals but a full stock taking of the interplay of human biological potentials in their societal and environmental context must become the basis of further emancipation. Will-power alone is not enough as is unfortunately manifest every day. This is the central tenet of the century long discussion on socialist education: what is the relationship between understanding present day capitalism and our ability to formulate feasible alternatives and clarify them in a concrete political praxis?

For those reasons, studying “utopian” experiments under non-capitalist and of course non-dictatorial bureaucratic conditions is crucial, because it drives us forward to fundamental programmatic questions. It was not uncommon in leftish circles to hope that, say; nuclear power under workers control would be safer than under capitalist market conditions. Among the broad left circles it was long considered that a democratic decision structure would be a bulwark against myopic short-term profit making. However, a precondition for such a democratic safety net is that all participating individuals (or collectives) have a fair, background in the state of the art and a deep knowledge of the issues at stake, including their intrinsic unknowns. Voting on ever more complicated technologies demands insight, not a group of political commissars, nor experts, who do it for us.

Let me give an illustration. In the important attempt to develop the standards of living in post-revolutionary SU, which was supported by everybody, the authorities were obliged to give an immediate answer to the manifest energy crisis. As the transport of good quality coal from the basins in the south was questionable, around 1920, a wholesale shift to peat and wood for the generation of electricity for Moscow and Leningrad took place. For an in-debt account of the colossal problems in the energy production see: Coopersmith (1992). Nobody then had yet any understanding of the ecological consequences. Another example can be seen in the tensions between the need to rapidly develop the production forces in an effective and efficient way in order to raise the welfare of the proletariat and therewith realise time for education, control

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1 In a special issue of The Russian review Sochor’s book is discussed by Margot (1990), Biggart(1990), Walicki(1990), and Kelly(1990, with a reply by Sochor (1990). For a strong Leninist standpoint see Mandel 1970
and decision making opposed to viewing the deteriorating consequences of the changing role of the worker from craftsman to an appendix of the machine or computer. The essence of the controversies in the 20s on Taylorism and the arguments of his champion Alexei Gastev is still on the table. See Bailes (1977). Hence, the study of the industrial development of the SU, and in particular the discussions before the bureaucratic counterrevolution took place in the late twenties, is important. Analysing what went wrong, in particular with hindsight, is important not only as a warning but mainly as an instrument to detect which dynamics in context we have to understand. In that sense, both books discussed in this review bring new insights.

Bluetooth

In *Would Trotsky wear a Bluetooth* the well-known historian of science & technology Paul Josephson (2010) more or less takes stock of previous studies from a clear ecological and democratic standpoint. In this sense, the book is also a good read for people who are less interested in the precise details as we already know from various standard works on the subject such as, e.g. Holloway’s *Stalin and the Bomb* (1994), Kotkin’s *Magnetic Mountain* (1995) and Josephson’s own *Red Atom* (2000). Josephson starts with a well-written overview of technological utopianism in the 1920s. The hope to build a new society on the ruins of Tsarist Russia demanded an enormous effort on all aspects of life. In this period, the new state, which had just nationalised foreign capital, stood alone. Autarky not only implied a clear break with foreign investments and intervention after the war with the co-called white forces, but also emphasised the self-emancipation of the populace, under the leadership of the emerging proletariat.

Technological utopianism was in the air, world-wide. The fast and successful development of the United States was an inspirational source that cannot be underestimated. The dramatic inefficient and backward situation in the Soviet industry needed a boost and an example. The “machine” (including tractors, trains, aeroplanes, and automobiles) and electricity were seen as a precondition for solving the pressing issues of food production, transport and simply running a modern state. As Coppersmith (1992, chapter 5 and 6) already shows, this notion dovetailed with the prerevolutionary desires of, for instance, electrical engineers who now had the opportunity to implement their shelved modernisation plans. In many aspects of life the clean and efficient machine became a figure of speech or trope. In 1923 a nation-wide campaign was launched to raise public awareness of aviation. An air fleet was seen as a necessary helper to provide fertilisers to illiterate peasants and at the same time show these illiterates, in short air trips, that no God was residing above the clouds (Palmer, 2000). Note that also in the arts, modernist constructivist ideas found fertile soil.
Josephson discusses the typical features of the concentration of industrial activities, which ultimately lead to the infamous mammoth projects. He mentions and discusses the following constraints that force this development: 1) the shortage of resources during nationwide building campaigns that stretched capital and skilled labour resources to the limit, 2) the use of construction sides as forums to transform peasants and workers into conscious communist proletarians, 3) the symbolic value of large-scale projects for world-wide glorification of the communist system, and 4) the opportunity to try out spontaneously such domestically produced and imported technologies such as turbines, tractors, and other earthmovers, while determining how to employ them successfully throughout the empire. The main problem with the latter was that workers often poorly understood how to use them and frequently the machinery and equipment were damaged at a work site or even rusted as they waited in a field exposed to the elements. A problem related to both educational backwardness and anti-modernism, we later encountered many times over in attempts to rapidly industrialise backward countries. The second caveat of this type of centralisation is being not able to meet the demands across eleven time zones and wide-ranging differences in climate and geographical conditions. As said in the introduction section of this essay, only the 1920's showed enthusiastic, open and deep discussions on the extreme tension between *Strum und Drang* and the intrinsic limitations of a (semi-)illiterate population, a war-ridden country, famine and a lack of intellectual as well as capital resources. Thereafter, we have the sea change in the Stalinist period, in which production figures and engineering goals became the hallmark of the five years plans. The discussions of the 20s should have fuelled modern Marxist development theory with a better understanding of the intrinsic pace of modernisation, with due attention to ecology and democratic structures, and the dynamics of mechanisation per se. In view of this, Bailles' important study on the dynamics of the conscious programme of the rapid development of institutes for scientific professional education is a warning of how new generations might divert from the original broad emancipatory goals towards a pragmatic work ethic. These programmes produced a new layer of well-educated engineers, with no personal references to the idealistic communist revolution. They perfectly accommodated themselves to the developing bureaucratic state structures (Bailes 1978). The small book on the results of the developments in the USSR, by one of the founding fathers of the study of Science & technology of the USSR, Loren Graham, more or less suggests that science and technology is intrinsically strong enough to develop even under barbarous conditions (Graham 1998). This conclusion is more or less based on the fact that Stalinist planning and control, at the end, is not so much different from the capitalist bureaucratic developments in the US. Graham therefore suggests a kind of immanent dynamics of science and technology. It forces us to study this semi-independent dynamics of technology more deeply,
as well as the opposition between: controlling technology versus democratic understanding and steering technology.

After over viewing the terrible consequences of technologically driven development of production forces in Eastern Europe and North Korea, Josephson spends two important chapters on the devastating nuclear hubris, and the industrial desert and its devastating ecological consequences, respectively. In his final chapters, Josephson comes back to the subject of the communist future: humans. In a frightening chapter, he reviews the total lack of workers' safety as the consequence of the obsessive drive for a purely operationalist technological output-driven industrialisation. In his final chapter the Gendered tractor the author discusses the double exploitation of soviet women. The perceived value-neutral role of technology is taken as a lever to: on the one hand, to emancipate women as workers, but, on the other hand, without socialising traditional so-called female tasks.

This well-written overview of disastrous social experiments is a good starter for those readers who have no technical training.

**Allies from Mars**

The disasters described by Josephson forces us even more into the essence of the Bogdanov discussion, which is gathering greater interest since the perestroika years. The initiative to publish Bogdanov=s complete works in English is an important step in the wider discussion on utopianism, socialist culture and technology.²

Alexander A. Malinovsky (1873-1928), working under his pen-name Bogdanov, was a fascinating intellectual who combined a medical education, an excellent pen as writer -including two famous science-fiction novels, a deep interest in philosophy of science and education, a believer in technology and a dedicated revolutionary. This mixture makes Bogdanov not an easy person to write about. Most famous are his controversies with Lenin (see the above mentioned book by Sochor and related discussions), but this is only part of his encompassing vision on the unity of society and the central role of interactive organisational units in a comprehensive whole. His clearly Amodern@ world-view which he called empiriomonism was based on a positive Ascientific@ attempt to surpass traditional Marxism and develop a new all-embracing theory of the *Living Experience*, which he named Tektology. For an insightful paper on Bogdanov’s broad interest in science see Gare (2000). For a full discussion of his *Philosophy of Living experience* see Jensen (1978).

At present, friend and foe recognise that Tektology is the first attempt to develop an encompassing (technology and sociology) system theory or

cybernetics (Susiluoto, 1981). It is in this light that we have to read Krementsov=s (2011) charming and precise study: *A Martian stranded on earth*. On the one hand, this book is an important addition to the history of haematology and blood transfusion; on the other hand it is a serious attempt to understand Bogdanov=s motives. World War I forced the taking blood transfusions seriously. Blood transfusions started as blood donations by linking the arteries of two people, a practise that did lead to mixed results. For Bogdanov, however direct blood sharing meant more than supplementing a vital fluid. Already in his bestselling Science fiction novels *Red Star* and *Engineer Menni*, the idea of a physiological collectivism was developed: an idea that expanded his idea of proletarian cultural collectivism (Proletkult), a concept that suggested that one could prepare a socialism culture, to a large extent autonomously from the party intellectuals, as a precursor for post-revolutionary culture. 

For Bogdanov, collectivising society was deeply ingrained in the totality of biological, social and technological progress. Krementsov clearly confronts this utopianism with the academic progress on blood transfusion, the crucial discovery of blood groups and the invention of blood storage as blood plasma for long durations.

Bogdanov believed that blood is the bearer of individual, racial, group-specific, and species-specific characteristics of any organisms, the same way germ-plasma is (Krementsov, 2011, 84). As modern genetics had still to be developed, these thoughts mimic the present-day over valuing of DNA as the only source of all phenotypes.

According to the author, the breakthrough for Bogdanov was the result of a fusing together of the success of blood donation in cases of heavy bleeding in the battle field as well as on the operation table, the age-old hopes for rejuvenation (such as injections with cells of monkey testicles and eating grounded Tiger bones, which are still with us) with the manifest *revolutionary exhaustion and attrition* as it was called. Obviously, the exhausting years of war and revolution demanded a heavy toll on the health of many a party official as well and it was even Trotsky, never afraid for new technologies (see above in Josephson=s discussion), who proposed a system of continuous medical monitoring of cadres. The first treatments, which we would today call blood-doping, as in cycling and athletics, were successful and Bogdanov, who was still in good speaking terms with the state leadership, became director of the world’s first state-supported institute of blood transfusion in 1926. Krementsov critically reviews the limited scientific results of the institute in comparison with academic research with his high voice as propaganda machine for Bogdanov=s philosophy. Though Krementsov carefully stays away from the political discussions and possible interpretations of this period, however, he does sometimes overstress the perceived intrinsic Bolshevik tendency for control over all aspects of life.
Bogdanov took his own views very seriously and engaged in a mutual blood exchange with a student with an inactive form of tuberculosis; Bogdanov believed himself to be immune to the disease. The experiment fitted perfectly in the idea that due to the transfer, Bogdanov=s perceived immunity acquired during his lifetime could be transferred to the student, whilst he could pick up young energies. Three hours after the exchange of nearly one litre of blood, both developed an acute adverse reaction. The student recovered but poor Bogdanov died soon after.

Bogdanov=s death was seen as the last heroic act of an unselfish physician and revolutionary. His funeral in April 1928 was a big event, with some passionate speeches including one by Bukharin. A year later his two sci-fi novels were reprinted in a run of 120,000 copies each.

This episode also shows the still large flexibility of the politics and culture of the young soviet state. A period that is utterly more inspiring than the bureaucratic backlash that followed.

The Bogdanov saga is in all its many aspects a prime example of revolutionary dedication, voluntarism and enthusiasm. The strong belief that science and technology are there to help us to emancipate ourselves from backwardness and oppression, is still a strong ally today. Unfortunately, the dialectics between intrinsic possibilities and actual societal practice of science and technology which drew so much attention of the elder Marx and Engels is still an issue that we have not yet mastered. The story of Utopianism well reported in these two books, is an important mirror for the present discussions on eco-socialism, and the energy crisis. Deep knowledge of the intricacies of present-day science and technology by the working class and its socialist organisations is a precondition for the setting-out of lines for future developments. Politics, economy, science and technology are more intertwined than ever.

References


Joost Kircz, staff member of the Amsterdam based International Institute for Research and Education (www.iire.org), has been active in Marxist organisations since 1967. After an academic career in physics he has been international science publisher and subsequently applied research professor in electronic publishing. He writes on the relationship of science & technology in relation to Marxist theory.