

DOCUMENT

STEVAN DEDIJER : *Freedom and Scientific Research*

The article below is an abbreviated version of an article on 'Research and Freedom in Undeveloped Countries' which first appeared in the *American Bulletin of Atomic Scientists*, September 1957. The author, an eminent Yugoslav scientist, is a former director of the Boris Kidrich Institute of Nuclear Sciences in Belgrade; more recently he has been dismissed from a research post with the Institute of Nuclear Science in Zagreb as a consequence of publishing this article. His article is prefaced by this quotation :

" If the work of a free man is worth two or three times that of a man reduced to slavery, why should not that be true of the thoughts of that man?"—STENDHAL, 1822.

My favourite anecdote about Marx, told by Wilhelm Liebknecht in his 'Recollections' took place in 1850:

" We took up the subject of natural sciences and Marx kidded the victorious reactionaries in Europe, who believe that they have choked up the revolution (of 1848) and do not suspect that the natural sciences are preparing a new revolution. The kingdom of steam, which turned the world upside down in the last century, is passing and its place is being taken by an incomparably more revolutionary force: the electric spark. Marx then told me — burning with enthusiasm — that for the past few days there had been on exhibition in Regent Street a model of an electrical machine pulling a train. 'The problem is now solved,' he said, ' and its consequences are unforeseeable. The economic revolution must be followed by a political one, for the second is the consequence of the first.' "

One hundred years after Marx predicted the rapid collapse and disappearance of capitalism, its direct heir was giving birth to the

research revolution and learning to live with it. Of course, it is not the same society, for instead of being, as predicted, increasingly out of step with the development of the material forces of production, it has been adapting itself continually to the world environment it helped to create.

The above anecdote and the original writing of Marx and Engels show that they deduced from the materialist theory of history, ahead of many other social thinkers the exponential development of science and the revolutionary role it can play in society. Yet, undeniably, there was and is something in Western society that Marx neglected, considered unessential, that made it much more dynamically stable and efficient than his theory anticipated. The lack of this something made the Marxist " scientific " society unstable and inefficient by any measuring stick, but most of all when judged by the wear and tear on human beings. Such facts are a challenge to those for whom Marxism is a theory of society, however approximate, and not a

religious dogma—especially when this something turns out to be a part of what Marx called the superstructure of bourgeois society; in other words, democracy . . .

The ideal society could be defined by the words of the Communist Manifesto as "an association in which the free development of each individual is the condition for the free development of all." A model society based on such an ideal today is a much more complex mechanism, involving incomparably larger numbers of people and material means, a greater degree of specialization and division of activity, requiring a much larger degree of organization and government action and a greater volume and freer communication of ideas, experiences, and points of view, both internally and externally, than the societies of the Greek or Italian city states that are historical models of creative societies.

The research revolution is the latest product of modern society, and in setting up any research policy, a most important fact should be taken into consideration; i.e., an undeveloped country is primarily an undeveloped society. The economic data about such a country tell just one important fact — point out only one aspect of an antiquated society with a primitive folk psychology and attitudes. There, besides the untapped creative energies, the appetite for a better life, etc., one finds exclusivism and mistrust of everything "foreign" — even though it is, and often especially if it is, the next village; a resigned attitude that "it is easier to make a man than a mule"; strict

conformism and intolerance of individualism together with lack of aptitude for team work; emotional irrationalism and strong anti-intellectualism; a mania for grandeur, and a national inferiority complex; ingrained belief that only force can settle issues and problems between men, and that the government, the greatest wielder of force, is to be feared and wherever possible cheated; and many other similar attitudes atomizing the society and making communication and co-operation very difficult. The morning after it wakes up free from the foreign yoke such a country finds itself — the victorious revolutionary leadership included — under the dictatorship of the past.

The only way such a country can free itself from this dictatorship, can develop rapidly the approximately correct policies, using to the maximum all the knowledge and experience that it has and can get from the outside, is to take a mercilessly critical, objective look at itself and its new ideology from all angles. This is impossible without boldly opening up the channels of communication. The dictatorship of the past cannot be eliminated without confidence in the people.

Such a task is difficult because it is considered unnecessary or contrary to the ideology of the revolution, and those advocating it are looked upon with suspicion, for in the victorious revolutionary optimism everything in the future appears to be easier than the very difficult job of overthrowing the old rulers. The optimism of the leaders will quickly lose contact with social realities if the old

texts of Marx are proclaimed to have all the answers today, including the idea that the objective study of one's own or bourgeois "superstructure" is either nonsense or treason. In addition to the still viable but ancient social dogmas permeating the psychology of the people (including the small scientific community) are imposed new dogmas which, strange as it seems, in many ways are not basically contradictory.

At first the doctrinaire Marxist declaration: "economics is primary," so let everyone produce kilowatts, tons, and kilometers, may be appealing to a people eager to start living 'like human beings, that is, like the people in developed countries. At the same time the society is unaware of the essential role that open channels of internal and external communication — a part of that 'useless bourgeois superstructure' -- play in countries where people live like human beings, in everything from research to making tons, kilometers, and kilowatts in a socially efficient manner.

There are many reasons for this attitude. For one, the capitalist countries once dominating them were not interested in developing a society but in getting the most out of the country; they exported to their dependencies goods, guns, capital, and police officers, but kept the democratic system for home consumption exclusively, proclaiming that such People were not able to rule themselves.

Thus even when colonial rulers do not aim at conquest, an undeveloped society may condemn itself (without having to) to

freezing the channels of communication or to dictatorship. One of the reasons most often given is that between dictatorship and anarchy there is no solid middle ground; this sounds very much like the old imperialist slogan, "they cannot rule themselves."

Until recently, the Soviet model seemed to many a strong confirmation of the efficiency of dictatorship in developing everything — economy, research, the new man, the new society. Yet the famous Khrushchev report to the Twentieth Congress of the Bolshevik Party is sufficient proof that the annual production of 50 odd million tons of steel, 305 million tons of coal, 170 billion kilowatt hours of electrical energy, and over 500 thousand engineers and scientists is necessary but not sufficient for a country to become even a first order approximation to a developed society, i.e., a society dynamically stable and socially efficient.

There are many practically unchanged social conventions and attitudes from Czarist times which remain in the Soviet Union. They include the unwritten, never admitted, but continually manifested conviction, fortified by 'Marxism,' that human beings are the cheapest commodity.

This has resulted in the use of force in internal relations, with the resulting cataclysmic internal convulsions and instability; the incalculable wear and tear on the people in achieving anything and the long-term social consequences of a brutalizing mistreatment of human beings; the absence of an efficient social mechanism to set up policies and correct them, and

nally, the inability to defend itself from Internal distortions without too much social waste, as testified to by the horrors of Stalin's regime.

The original ideal which the Soviet society set out to achieve was, "An association in which the free development of each individual is the condition for the free development of all," and divergence from this ideal has been a lesson within and without the Soviet Union.

The events in Hungary, Poland, East Germany, the Soviet Union, and elsewhere, testify to the fact that the growing intelligentsia in such countries is among the first to realize the loss the country suffers through dictatorship, for it is deprived of one of the social reasons and conditions for existence, i.e., to help society get a critical, varied picture of itself and its problems.

The intellectuals learned by bitter experience that toy freezing communication channels, the dictatorship of the proletariat becomes a dictatorship over the proletariat, resulting in stagnation, bureaucracy, and degeneration.

These experiences, exchanged and compared with those of India and the developed countries of the West, have brought about the realization that dictatorship is not only inefficient, but, furthermore, that it need not be inevitable.

When the Soviets first tested an A-bomb in 1949 and an H-bomb in 1953, the West was surprised to discover such a powerful research programme in the Soviet Union. This fact seemed to serve

as evidence that an undeveloped country can develop its research programme on a broad basis and at a high level even without open channels of communication. Here then is the contradiction — the puzzle.

This is a puzzle only to those who have forgotten that the Soviet Union is the country of Lomonosov, Lobachevski, Mendeleev, Petrov, Sikorsky, Pavlov. In other words, the Soviet Union has a tradition in fundamental and applied research, a fact which must confound those who completely deny any validity to the materialist theory of history. The Soviet leadership, starting with Lenin, saw a practical confirmation of Marx's views on the role of research in society from what was happening in Western countries, much sooner than many practical men in Western countries themselves saw that "research is weapons" or "research is profit."

As to the rest of the argument, the present state of research in the Soviet Union should be weighed against the effort spent and the cost paid in men and materials for developing under a dictatorship. This is very difficult to do because of extreme censorship and secrecy. However, there is some direct and some circumstantial evidence that should be included in such a balance sheet.

The disappearance of one Vavilov and innumerable lesser Vavilovs during the past twenty-odd years, the imprisonment of a Landau and the eclipse over the years of a Kapitza and innumerable lesser scientists, the browbeating of a Frenkel and a generation of lesser Frenkels into

openly asserting that the state dogmas are essential in scientific research, the fierce political attacks and silencing of innumerable other scientists, as in the Lysenko case, with long-term consequences for research: all of these make up the weights that should be placed on the debit side in estimating the efficiency of research development in the Soviet Union.

The experience of other countries shows that secrecy in science and the domination of ideological motives very often bring, among other negative consequences (especially in undeveloped countries), a flowering of pseudo-science and very costly applied research and construction projects destined to die stillborn under a veil of secrecy. The argument that, in the light of the results achieved, any waste — no matter how large — is worthwhile, especially in a country with the tremendous human and material potential of the Soviet Union, is not valid in any case, but especially not for a small, poor country. The partial and sub rosa slackening of the ideological dictatorship in science, the release from house arrest and concentration camps of intellectuals, the brief flash of open opposition on the part of scientists to the dictatorial appointment of leaders of the Academy of Sciences, the Kapitza article in Pravda on the necessity of a more elastic policy in setting up research projects, are signs of a growing realization within the Soviet Union that it cannot afford, and is searching for a way to avoid, such a waste of men and materials in developing research.

The Soviet Union departs in two important aspects from the model of an undeveloped country used here: first, it is a very large country; and second, it started with a scientific tradition. In most new small countries such a tradition is almost completely lacking . . .

Stimulating the scientific community in such a country (to contribute to the clarification of fundamental politico-scientific questions) is not an easy task and can be accomplished only through a persistent development of a general atmosphere of freedom. What little research equipment and personnel such a country has is concentrated around small universities, where one finds a few individuals who by talent, strength of character, wisdom, and strong contacts with world science managed to do some scientific research, usually toy keeping strictly isolated from the research problems of the country, from their colleagues, and often from the young generation. As a community, it is atomized, torn by jealousies and rivalries, each man closeted within his own specialism, and in the general atmosphere of traditional anti-intellectualism he is often saturated with a sense of frustration and lack of appreciation. This frustration is revealed in the absence of a tradition of initiating or expressing ideas on developing research — past experience has taught that such initiative may be punished by a loss of position or the opportunity to continue personal research, or by an attack by jealous colleagues (who themselves complain that co-operation is impos-

sible).

After the liberation, such a scientific community is extremely sensitive and watchful of every step the new government takes in its field, and at the same time very hopeful. Opening up such a scientific community is difficult for a government under the best of circumstances. Yet one man jailed, dismissed, or attacked for his opinions, will cause scores of research men of the old and new generation to withhold their ideas and contributions to the development of research policies. One prominent example of a man rewarded in science, not because of scientific merits but because of ideological beliefs, will result in scores of young people following the road of political and ideological apple-polishing.

Thus, aside from the dangers of a direct ideological and political tyranny, there is a grave danger that the channels of communication within such a community may remain closed, that the new blood will have to flow through the old clogged-up veins. The new generation will continue to work in a new laboratory with the old traditions left unchanged. The scientific community will not make its contribution to a research policy. This opens up the possibility of a strong bureaucratic development of research with the resultant waste of men, materials, and time . . .

In a country that has failed to open up the channels of communication, there is a grave danger that a hit-and-miss research policy based on unrealistic, purely political motives will be set up

by inexperienced state bureaucrats. How many bureaucrats in undeveloped countries hid for "security reasons" the losses incurred in projects for new ultra-secret weapons that were to insure the independence of the country, (for recipes for controlled thermonuclear reactions that were to make energy cheaper than mud, or for research projects that were to enable the country, as if by magic, to jump whole stages of economic development and reach overnight that of the developed countries, or for other research projects started with the limited means of the country purely for "political prestige" reasons? Quite a few, one would say, at least judging by some internationally known cases or by the stories one hears over drinks at international scientific conferences.

A country neglecting to stimulate from the start the free expression of opinions, neglecting to develop channels of communication necessary for a (research policy, will destroy its illusions very slowly, will learn in the most expensive way, by hard knocks of all kinds. And when the exigencies of the world market, or of its own Internal needs, make such a country realize that the idea of open channels of communication is not an Imperialist plot, but a social mechanism developed by the "capitalist imperialists" for their own good and essential for a modern society -- it may discover that it has, for a time, missed the bus of the research revolution.