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“Science, Education and Political System”

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CONTENTS

1. INTRODUCTION

Looking back to the recent past and attempting to comprehend it, it is very important to understand how broadly and deeply the totalitarianism may effect the cornerstones of contemporary civilization and the extent of feedback impact. Totalitarianism destroys the institutes of democracy, curtails the freedom of the individual to the maximum, paralyzes the most diverse spheres of spiritual activity starting with artistic creation and finishing with sciences. It is the science - the most essential phenomenon of the 20th-century - science existing as a social phenomenon under the conditions of Soviet totalitarianism that will be the object of this research. The work will discuss the genesis of science repressions, focusing on the specificity of historical experience in the Baltic countries, analyzing the mechanisms of interaction of totalitarian regime with science. The most important idea which will be attempted to be proved in this work is that science as a social institution, its values and functioning, and its impact on education were: 1) a very important factor which did not allow the totalitarian ideology to fully enslave social and individual consciousness, became one of the few spheres of public free thinking in the ideologized society; 2) one of the sources of liberation from totalitarianism; i.e., a social institution which due to its nature required free thinking and expanded the limits of such freedom. Briefly and in simple words, this work will attempt to prove by philosophical and historical arguments and to show how totalitarian political system, striving for technical progress is forced to allow the free use of science, and this in the end will shake the fundamentals of totalitarianism itself.

Looking to the stable social institutions of the Western world and to the seldom changing relation of science and the State, the theme “Science, Education and Political System” may seem to be sufficiently exhausted.[1] I do not think this approach is reasonable even when reflecting the experience of Western countries, the more so it would be erroneous when striving to survey the experience of Central and East European states. This theme acquires a new sounding and urgency when attempting to perceive the phenomenon of totalitarianism and explaining the transformation of this regime to democracy. In my understanding, the reciprocal adaptation of science and social environment in this context has the fundamental meaning and requires special attention of the researcher.

At the beginning some words should be said as concerns the methodological fundamentals of the theme, since it seems there could be some doubts if social environment may have an effect on science at all, especially its contents. More than one generation of philosophers, science historians and science sociologists raked their brains to find an answer, especially more intensively from the 3rd decade of this

century, how science (its “internal” and “external” history in I. Lakatos’ terminology) is conditioned by social impacts. Social impacts on science were analyzed, their existence, effect on the climate of science dissemination and even the intensity of its contents, etc. were argued.

Science philosophy contains two extremely different approaches to this problem. Radical positivistic (inductivistic) position (internalism) denies any possibility of external impact on science, be it intellectual, psychological or social. From this standpoint, the theme of our research and research intentions would seem to be futile. In my opinion, inductivistic methods were convincingly criticized by K. Popper and I. Lakatos[2]. According to Imre Lakatos radical inductivism is as if the version of radical internalism, requiring to reject any scientific theory or proposition, if one succeeds in establishing an external effect on those above mentioned. He maintains that radical internalism is an utopia, since a real impact on science does always exist. Therefore this utopia, like any other, destroys itself[3].

In the middle of the 20th century with the development of pospositivistic science philosophy the ideas of the conditionality of social science started to develop. E.g., I. Lakatos formulates “research programme” methodology, which acknowledges the difference of “internal” and “external” science history, but also underlines the interaction of these both[4], therefore he refuses to reject social, psychological and other conditionalities even from “internal” science history.

Science sociologists even more earlier than science philosophers started to treat thus the social conditionality of scientific knowledge. The initiator of scientific sociology R. K. Merton, when studying the behaviour of the scholar, revealed standards orienting it - universalism, collectivism, unselfishness, organized skepticism. However, he thought, these standards were just the external social elements of scientists’ life, having no effect on science contents[5]. Scientific sociologist, historian and philosopher T. Kuhn treats the standards existing in science more broadly. He introduces the concepts of “normal science” and “paradigm” and shows that social factors - habits of scientific work and organization, publishing of text-books, etc. are able to affect even the foundation of science[6]. On the basis of these ideas his followers introduced the concept of “scientific community” which is fundamental to science sociology[7] - as a collective factor which forms the development of social science and its contents. Thus starting from the 7th decade science philosophers and science sociologists start to come to an agreement that science process and even knowledge contents are socially conditioned. As concerns the existence of the opposite impact (that of science on society) no contradictions seem here to exist. There is the polemic of antiscientists with scientists ensuing from J.J. Rousseau.

Thus our considerations will also flow along the methodological current formulated by K. R. Popper, I. Lakatos, R.K. Merton, T.S. Kuhn and their successors. My view of science will be as that of a social institution, rather autonomous but dependent on various external circumstances and more or less affected by social factors. Science does not exist in isolation from society, but is under its effect and affects it. This social institution in its turn has a strong impact on other social institutions, and as I shall try to show even on political system. Therefore I will not avoid an analysis of the relation between science and ideology. The latter is very widely used in postsoviet Russian literature and I shall discuss it later in this work.

Themes relevant to science and politics are variegated and broad. When discussing problems of different countries, cultures, political regimes or periods, quite different aspects of research may be focused on this theme. If social and political situation of science is analyzed in contemporary democratic countries, commonly the issues of financing priorities of scientific research ("science politics" at international and governmental level) are underlined, the impact of science on social progress, problems of state control over schools, universities and research institutions are discussed, moral and social responsibility of scientific activity is analyzed[8]. This theme becomes actual from quite a different aspect, that of the place and role of science in the totalitarian regime and its transformation into democracy, when the researcher focuses on Soviet Union and the states formed as a result of its collapse. Many works have been devoted to the analysis of science under the Soviet regime. Broad studies were made into the sphere of repressions of scientists and certain branches of science, into historical Russian traditions of antiintellectualism.[*] However, insufficient analysis exists as concerns the impact of science on reducing the absolutism of totalitarian ideology, and, to my mind, the mechanisms of the effect of totalitarian ideology on the "internal" history of science (its contents) have not been researched. The specific features of the functioning of science in different regions of the Soviet empire were not duly discussed.

The present research has been realized within this analysis. However, before passing to the more detailed consideration of the problem it would be worthwhile to specify briefly this horizon of analysis. Primarily, we would focus on the rather extensive events in terms of history: presoviet position of science - Soviet totalitariansim - *perestroika* - consolidation of democracy. Here I was not able to avoid some sort of conspectus approach and fragmentariness. Secondly, in this analysis more attention is given not so much to the interaction of education but rather to the interaction of science and higher education with a political regime. The term "science" used in the text in most cases will have the meaning of "science and higher education", since always one must have in mind that higher education and scientific creation are very related phenomena. Thirdly, the principal intention of the research is directed to reveal the interaction of

[*] Russian science historians and philosophers work actively in this sphere. In this work some of them will be used as a basis.

science and political system in the Baltic states (especially Lithuania), however, the material itself also requires to analyze the condition of science in the Soviet Union, since in 1940-1941 these countries were incorporated into the USSR. To my mind, the situation in the Baltic countries and its development would be best clarified as compared science situation and its social status in Russia and Lithuania and other Baltic states.

2. REPRESSED SCIENCE PHENOMENON (SCIENCE IN THE USSR)

Repressions in science is not a new phenomenon, related to the 20th-century totalitarian regimes. Repressions accompany science and scientists from its birth. Science born in the newest times and having a contemporary meaning had difficulties in liberating itself from the control of religious institutions and dependence on the mercy of monarchs who carried out it. Standard and hackneyed examples are the trial of inquisition against Galileo Galilee (1633), the inclusion of Copernicus' heliocentric system "On the Turning of Celestial Spheres" in the banned books (1616). A constant feeling of fear to be criticized by the church and persecuted for one's own views was common to then scientists. The best witness of such fear are letters and works of R. Descartes, a 17th-century genius of science, full of excusing speculations that his theories and ideas do not contradict to the truths of the church. The said works of almost four hundred years old remind the recent proof of "Marxist" and "party" trends of natural science theories in the works of physicists, chemists, biologists and even mathematicians. It seems that an enormous distance of time separating Descartes and the middle of the 20th c. disappeared and the scenario of history that became exhausted of innovations starts to repeat only in a still more refined manner revealing its most ugly sides. The history has never seen repressions of such a scale not only against separate scientists, their ideas, scientific schools, but also against the whole system of science and education.

In this part I shall discuss the repressed science as a phenomenon in the former USSR, briefly characterize the historical sources of this phenomenon, compare them in the centre of the empire and in its western edge - Lithuania. Then I shall characterize the impact of USSR science repressions on different trends of science.

2.1. HISTORICAL SOURCES

In the history of new times there is no difficulty in seeing an important progressive civilization trajectory - the tendency of the restriction of political power. Political power in democratic countries in the 18th-19th centuries refused or lost science control powers and especially ideological control. In 1919, the sociologist Max Weber who stated: "Politik gehört nicht in der Hörsaal"[9] (no talks on politics at a lecture-hall) characterized the autonomy of science as one of the most essential principles of scientific activity and the significant achievements of civilization. This autonomy was guaranteed by a tradition itself, in other words, science genesis in the Western world. Western science emerged as a spontaneous phenomenon, the origin and successful development of which was not under an important or decisive effect of the then political regimes. Universities were also autonomous from political power, i.e., educational institutions that inherited such a tradition even from the Middle Ages. At the same time processes in Russia flowed in the opposite direction, thus witnessing that history is not a uniform and constant stream of progress, and that in different political systems and cultural areas science may develop differently. Favourable conditions for science do not always exist and not in all countries. For science to develop it should have proper economic support, favourable psychological and political climate.

Russian science history researchers B.G. Yudin, S. Chernozub, A.I Rakitov[10] admit that science in Russia has quite a different nature than in Europe. In Russia it is a social institute established from above, while in Europe scientific institutions evolved as independent non-State institutions, rather autonomous from the State institutions. "Bringing of science into Russia and its maintenance was purely a State affair"[11]. Neither personal freedom nor university traditions existed here. Science was brought into the empire (by Tsar Peter the First), as if a beneficial but simultaneously dangerous commodity purely for pragmatic purposes (to teach bureaucracy and create war industry) and was descended from above[12]. Teachers and engineers were also brought.

As is stated by A.I. Rakitov, science ideas, principles and traditions happened to be brought into an environment which was not favourable for its flourishing and growth: science as a social institution was an alien phenomenon to Russian traditional culture, where antiintellectual traditions prevailed. Therefore it was met by the conservative public and orthodox elite with hostility. Science was treated as a phenomenon, alien, "proWestern" and dangerous to the society[13]. Science was interpreted from the positions of ideology of the great State and orthodox Russian church as a phenomenon encouraging the dangerous Catholicism (it was witnessed by the Latin language) and disobedience.

Even though science came to Russia very late - only in the 18th century, as compared with Western Europe, its social adaptations was difficult, The activities of the Academy, established in Moscow, were restricted by religious-official supervision. Scientific institutions existed on the mercy of the authorities and only within the established limits. Unofficial persons were even banned to have foreign books (Latin, German, Polish). The strength of scientists' belief was under control. The more gifted young people were appointed to science as if to military service. Such a situation, according to Svetlana Chernozub, existed until 1860, unless the social and political limitations started to decay. Thus, only before the Bolshevist revolution in 1917, i.e., about 50 years, science existed under more free conditions[14].

As compared with the centre of Russia, some edges that were annexed to the empire rather late possessed better science and education traditions. Here I have in mind Lithuania and part of Poland that were annexed to Russia after the Third Polish-Lithuanian Partition in 1795. Vilnius University at that time had a history of more than two hundred years. It was an autonomous scientific institution of old traditions, with privileges granted, which was governed from 1773 by the secular Education Committee. University was the cultural centre of the extensive region, then propagating science, social and political concepts of the Enlightenment Epoch.

After incorporating Lithuania into tsarist Russia, Vilnius University lost its autonomous functions and became dependent on political authorities. In spite of immediately introduced restrictions and Russification the University was able to remain the Lithuanian cultural centre, the centre of national and social resistance to tsarism which could hardly follow the standards of obedience required by the tsarist administration. Therefore no wonder that

the staff of professors and students were under strict control and often oppressed. Students and lecturers were active participants of the 1830-31 uprising in Lithuania and Poland[15]. After suppressing the uprising in 1832, Vilnius and Warsaw universities , some gymnasia were closed, strict censorship was introduced. Thus science as an institution not pleasing the regime was repressed in the drastic way in this country the first but not the last time.

2.2. SCIENCE IN THE SOVIET UNION

After the Bolshevist revolution the Communist authorities also looked upon science with suspicion as to the phenomenon infected with bourgeois ideology and thus requiring essential revision. However, it could not reject science and education. On the opposite, Communist power always underlined the scientific background of its system and ideology, but as specifically understood (on the basis of the "classical" principle). This new political system being armed with "scientific" ideology volunteered to restructure the state and even the whole of the humanity in the light of new science and principles. It is understood that "scientific" ideology could perform such global tasks, it could clean oneself from "antiscientific", "bourgeois" traditions, first of all in science and education.

In the hard tsarist times the system of science and education that became autonomous was under full dependence on political authorities. The main organizer and ideologist of the repressions of science and all the public was the governing oligarchy, i.e., the Communist party with its leaders at the head. Repressions befell upon science and education at once after the Communist revolution, and the phenomenon of the repressed science, according to I.I. Molchanov, who investigated this process, was formed in 1917-1922m[16]. B.G Yudin stresses that it was then that deinstitutionization of old (bourgeois") science and simultaneous secondary institutionization of new ("revolutionary", "proletarian", "Communist") science on a new basis occurred. This basis, according to him, was comprised of three valuable-normative complexes[17]. First, it was asserted that Russia became the vanguard of civilization and thus conditions were created here for the development of vanguard science. The world science values and principles should be revised on the basis of the vanguard ideology by the vanguard public. Leninist-Marxist ideology was announced the basis of vanguard science, the scientific methodology of science, and was turned to a canon.[*] Second, the system of the values of "popular" ("people's") science was formed that denied the academic knowledge and asserted the people's creativity. On this basis people's scientists (T.D. Lysenko, I.V. Michyurin , etc.) were promoted. The "people's" principle required to create the ordinary science understandable to the people and to reorganize education. Third, the value of "party-spirit of science" was put forward, stressing the opposition of "proletarian" science to "bourgeois" science. Science became only an arena of the global fight between the classes, where perfidy and conspiracy are not less dangerous than in other spheres.

[*] Canons of texts and ideology as well as methodology authoritarianism were characteristic of scholastics. Therefore in this sense the evolution of Russian science was turned against the course opposite to the history.

Striving to speed up the education and to make it accessible to the people the “accelerated teaching” was invented. The level of instruction went down. The State approach towards intellectuals as a social stratum, started to change radically. “The really traditional antiintellectualism”, writes A.I. Rakitov, “just changed its form. The “facilitation” of the requirements, narrow mercantilism, self-isolation of information and the alienation from the world community, even though there were separate significant scientific achievements, lead to the fact that in spite of the accelerated increase of specialists with higher education, their professional preparation was still more poor. <...> In the country of the proletarian dictatorship”, “socialist society of workers and peasants” professional intellectuals in I. Stalin’s view was a “layer”, performing an auxiliary function. The Communist party always looked upon the intelligentsia as if to something of double nature, suspicious, not deserving confidence. It was evil with which the party had to reconcile “on behalf of workers”, since it was required by the empire interests that were based on the giant military industrial complex, subjugating about 80% of scientific potential.[18] Therefore the Communist party watched this not very reliable social stratum and its production very vigilantly and controlled it. For this reason the “ideological reinforcement” was specially sent to the science - ideologically reliable representatives of the Communist party. Thus the “reliable” party members occupied the leading posts in educational and scientific inststitutions who were awarded scientific names and degrees “on easy terms”, and their administration powers were just unlimited. Diletantes started make claims for science. The background for science “Sovietization” was prepared using such organizational means.

Science was accompanied by strict State control during the entire period of USSR existence, but the level of control and the intensity of ideological and administration impact on separate sciences got changed eventually. The strongest and most global repressions were under the rule of Lenin and Stalin.

Most repressed were humanitarian and social sciences. They were forced to evolutionize to the ideology-based subjects, grounded on selective facts, their not critical interpretation, deformed methodology and even already mentioned pseudoscientific principles. Even purely “Soviet science” branches appeared - “scientific Communism”, “scientific atheism”, “CPSU history” that had problems even with defining its object, since for example, the object of “scientific Communism” was just the concept of utopia, having no real existence, and the object of “scientific atheism” just had a negative definition.

The invasion of totalitarianism into humanitarian and social sciences was not limited “just” to the violence of a scientific method or principles, or the physical compulsion of scholars who could not fit the required limits. Representatives of the humanities and social sciences were forced to live in the special isolation of information. Contacts with foreign peers were impossible. Foreign literature on these issues was not accessible. All literature of some importance that reached the then Soviet Union was kept in the closed “special funds” of central libraries. Special funds also stored many works of anti-Soviet authors. Only very reliable persons could use this literature and, as a rule, for the purpose of criticizing “bourgeois” science, culture, art, philosophy and capitalist system. The lucky visitors to “special funds” also had no possibility to open widely a window to the world knowledge.

They were not allowed themselves to use catalogues. They received literature strictly to the theme indicated in the permission and the manager of the special fund mercifully provided it. Ideas and thoughts which they got to know were not allowed to be widely commented, cited or retold, probably, because of their “wrecking” effect, and it was possible to criticize them without detailing their contents and context.

After Stalin’s death scientific ideological control starts to decay gradually, but for humanitarian and social sciences it did not disappear until the collapse of the USSR. In the 7^{th}-8^{th} decades it became possible to engage more freely in logic, linguistics, science history and methodology, historiographical research of remote prerevolutionary times. The political regime strove to maintain the ideological oppression for these branches of science up to the very collapse of the USSR, but in spite of these attempts it started to become more formal. In scientific research, lectures, and books the *dualism* of scientific contents and ideological “contribution” started to reveal itself, purely formal interaction of these both sides. Such dualism was transferred to the public life, splitting it into official - facade and unofficial - pithy. When M. Gorbachev in 1986 started the “publicity” campaign, the ideological screen of the public life which contained quite many holes and became just pure formality fell down and the already existing and matured content started to express itself freely. It became clear that not just and not only Marxist scholars of authority are known and respected in scientific circles, but the ideas alternative to Marxist doctrines, evaluations breaking its practice were accumulated long ago. Historical, philosophical, politological, sociological research, interpretations of the former “theories” came in an avalanche. The press published it with pleasure. Scientists, lecturers, cultural workers became the most favourable television characters. This flow of events became most strongly expressed in the Baltic states, which then became the engine of *perestroika*, but it was not equally characteristic of all the USSR regions.

Natural sciences could not avoid repressions in the totalitarian State either. Not only scientists or relevant scientific schools that failed to please party bodies or KGB were persecuted but also the entire “bourgeois” science theories or even branches of science. The “bourgeois adherence” was established by the mentioned method - world picture scientific interpretations were taken for assistance and it was “forgotten” that several of them existed. Repressions started approximately in 1922, and at the turn of the fifth and sixth decades the search for bourgeois-idealistic theories embraced many branches of science. T.D. Lysenko, an active supporter of Michyurin, exterminated the representatives of the “false science” - genetics, V.T. Ter-Organezov astronomers - wreckers at Pulkovo and Tashkent observatories. Simultaneously the campaign was launched against the “ideologized science” - relativistic cosmology. Attempts were made to deal with “machistic” quantum mechanics, a decade later against “reactionary” cybernetics. A list of the repressed spheres of science would be endless, since no branch of science existed without control. Ideology that started controlling scientific world picture becomes the censor of science itself, which, unfortunately, is non competent in scientific theories, but gearing science in a natural and philosophical manner very confidently. Methods used in the fight of Communist ideology against “bourgeois” science were not scientific.

Under the cover of ideologically “true” research, charlatanism and isolationism - the so-called “people’s science” became popular. The best example is I.V. Michyurin’s selection, praised by T.D. Lysenko. Ideologists were not mean and did not shake with fear before authorities. On the contrary, authorities trembled before them. E.g., S.I. Vavilov criticizes “The Course in Theoretical Physics” by the well known USSR theoretical physicists L.D. Landau and E.M. Lifshits for indifference to philosophical problems, thus for formalism, machism. He draws the conclusion that it is necessary to fight resolutely not only against bourgeois science, but also against “conspiracy of silence”.[19]. Commissars of Soviet science were bold in chastising the most well-known authorities of foreign science P.A.M. Dirac, W. Heisenberg, A. Einstein, A. Eddington, etc. For example, I.V. Kuznetsov cannot imagine the possibility of further development of Soviet science without the exposure of A. Einstein’s “false” teaching”. He criticizes from his height all the theory of relativity and its principal “antiscientific” propositions.[20] He and his peers D.I. Blochintsev, M.E. Omelyanovsky, J.P. Terletsky “broke” N. Bohr’s principle of complementary - the most essential postulate of quantum physics.[21] If such things occurred in physics, it is not difficult to imagine what was going on in science in general. Therefore, if it is worthwhile to wonder that the 20th-century authority of physics, the creator of quantum mechanics W. Heisenberg compared the objectives of the theoretical conference in Leningrad in 1948, dedicated to ideological issues in astronomy, with the trial against Galileo Galilee.[22]

All “bourgeois” scientists and scholars were criticized not for non-compliance of their scientific arguments to facts, but for non-correspondence of the ideas they advocated to official materialism dogmas. Genetics stated that a gene determines hereditability, and Marxists thought that a human being is the product of social relations. Therefore the dispute was settled by prohibiting the genetics. The authors of relativistic cosmologies A. Einstein, J. Jeans, A. Eddington, W. de Sitter discussed the idea of the Great Explosion of the Universe, while materialism maintained that the world is eternal. Thus cosmologies were prohibited...

In the prospective under discussion the sensitivity of the 20th-century scientists to any ideological and philosophical oppression seems to be very natural and feasible. According to the words of the most conspicuous physicists of the 20th century Max Born “philosophical dogmas are too few to allow the interpretation of natural sciences, and physics must not justify these dogmas. The claim of Marxism to be the only scientific interpretation of the world which would have the only true scientific meaning is very dangerous to humanity.”[23]

Thus we can make the following *conclusions:*

1. National specific features - economic, political, cultural and psychological conditions of the existence of nation - may strongly affect the development of science, stimulate or hinder its growth, deform or allow the free development of its structures. In Russia there were no such favourable conditions and traditions. The status of the scientist and of the scientific work was not high in the society, it was very restricted and controlled both on the part of the monarch and the church. Attempts of the scientists were mostly directed to the creation of technologies and their implementation. With such traditions in existence the Bolsheviks had no much difficulty in reforming science in “the revolutionary spirit” after the revolution in 1917.

2. Considerably more favourable traditions existed for science in Lithuania and part of Poland that were annexed to Russia. Scientists, professors and students did not limit themselves to the problems of natural sciences but were especially active creators and propagators of new social and political ideas. The authorities did not make use of these traditions, but made their best to liquidate them by annihilating the institutions of higher education in this country.

3. Ideological supervision of science that existed only in the times of Galileo Galilee or Descartes became revived in the USSR with the unprecedented force. Therefore J. Langdon-Davies 'observation is very apt that in this respect Russia turned its time back.[24]

3. TOTALITARIAN STATE AND SCIENCE

I shall attempt in this part to give an answer to the question: through what channels and how totalitarianism may penetrate into science? Also here the place of science in a totalitarian crisis will be elucidated.

3.1. TOTALITARIANISM AND SCIENCE: INTERACTION MECHANICS

Wishing to understand more deeply the state of science in the Soviet Union, we would like to draw attention to two opposite factors that predetermined this condition. First, even though the ideologists were eager to create "Soviet" science and therefore "vanguard" and differing from "bourgeois" science, in reality the science in the USSR was under strong effect of the European science traditions, values, principles and ideas. The development of science in the USSR depended on the existence of these links. Second, the Soviet State influenced science basing on the powerful ideological press.

The effect of ideological institutes on science - theory, principles and scientific creation - is not evident. Wishing to understand the mechanism of that effect two questions should be answered: 1) how ideology is institutionized in the totalitarian State[*]; and 2) through what channels ideology can penetrate the science, how it can affect science or even drive it?

The totalitarian State (I have in mind the USSR) is centralized to the maximum. The State comes forth as an all-embracing organizing mightiness. Without State control, certainly, the sphere of the creation of ideas and dispersion cannot survive - heads of people must be controlled and filled with the material desirable by the State. Therefore the institutionalization of ideology in such State acquires a specific feature - the ideology production and its control system are made State property. Only the State's highest hierarchy may be the source of ideology - to permit, change and interpret State ideology, and the public is just its consumer. The ideology belonging to the State is canonized and declared "scientific", more than that it is the foundation of all sciences. Alternative ideologies here are not tolerated, they acquire the status of heresy encroaching the foundations of the State, the traits of antistate crime. The persecution and destruction of the source of such ideology become the matter of State importance. Therefore ideological supervision is centralized, globalized and politically administrated. A special ideological control mechanism is created for effecting such supervision and it has many links, of which the most essential is the institute of everywhere existing political leaders - the unique "clergy" of the totalitarian society. Having originated from the political supervision in the army, it very quickly extends the sphere of its activity, embracing still new areas of public life, including science. It is not by accident that M. Weber so earnestly encouraging to drive away any politicizing from lecture-halls, inevitably based on any ideological scheme, since in this politicizing there are few arguments but it is not difficult to see grimaces of totalitarian thinking.

An explanation that the totalitarian State is superideologized does not give an answer to our second question: through what channels ideology can penetrate the science, how it can affect science or even drive it? Ideology, naturally, is not able to fight with figures, axioms, lemmas, theorems, science theories or scientific facts as such. It would be totally helpless to affect science, if its composition alongside the mentioned architectural parts would not contain a metaphysical component of science - world picture. Many thinkers have drawn attention on its fundamental importance to science and culture: physicists M. Planck, W. Heisenberg, J. Jeans, etc. Philosopher M. Heidegger in his work *Die Zeit des Weltbildes* (The Time of World Picture), underlying the importance of world picture to the culture, named all the New Times as "world picture times, since science, which perceives the world in the essence as a view (picture, scientific construct), dominates in this epoch.[25]. In the opinion of this philosopher, science reveals itself as a world picture: the world is designed, or otherwise constructionized. This project is being developed at special scientific institutions - scientific collective bodies, speaking more broadly in scientific communities. World picture paradigms and also the fundamental effect of science community on the development of science are recognizes by all the contemporary science philosophers and scholars of natural sciences involved in philosophizing, starting from M. Planck or even E. Mach and W. Ostwald.

World picture is the most common ideal model of nature and society. With the emergence of new theories it is their targeted level, indicating the most common object of knowledge and the method of its constructionism. In terms of old theories it is their level of interpretation. However, in some cases it does not coincide with the theory itself, encompasses the other phenomena - philosophical, methodological - of scientific theory, its objects, principles and scientific activity. If scientific theory is the system of propositions, logically strict, more or less closed, deductive or formalized, about real phenomena, its world picture frequently develops by several alternative trajectories and often is not uniform. Not only scientific but also metaphysical arguments are functioning in it. Thus philosophical ideas spreading in the public, fragments of ideological approaches here may seek arguments and may consider as if they found the reflections of their own approaches. Through this complicated channel of science connection with broad spiritual culture of the public science is affected by the ideas functioning in the society and has an effect on them itself. With the democratic system existing, scientific world picture is the channel through which science by manifold ways and in the spirit of pluralism interacts efficiently with culture. The dominating position in this system acquire scientific interpretations maintained by the majority of scientific communities in the stormy discussions, but alternatives are not destroyed either. For example, in the middle of the 3rd decade of the 20th century with the appearance of several quantum mechanics, the so-called Copenhagen interpretation, developed by W. Heisenberg and N. Bohr, was prevailing. However, at the same time the "wave - pilot" concept and A. Einstein's nihilistic attitude to interdeterministic world picture of Copenhagen school evolved and have survived until recently. In the totalitarian society this channel of science and culture interaction was begun to be controlled by ideology. Thus the diversity disappears and the fundamentals of science are ideologized.

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* This issue we have already started to discuss in the last section.

The created party public control mechanism embraced all the spheres of public life in Soviet totalitarianism. When analyzing totalitarianism Leonard Schapiro noticed meticulously that “an official ideology and freedom are incompatible”[26]. The time of science and culture in Russia were turned back and in this sense Russia falls out from the tradition of the New Times, called aptly by M. Heidegger as “die Zeit des Weltbildes”. In Stalinist Russia scientific world picture is constructed not only on cognitive - logic, but also on party - ideological foundations. Ideological intervention to the science occurs affecting its world picture structure, giving it ideological features or forcing science to acquire them.

Thus in totalitarian communities science autonomy is curtailed, it is strongly regulated: driven ideologically and is under censorship. Science is institutionized according to the normative principles, politically predetermined and not characteristic of science, its object is limited and deformed, its separate methodological approaches and interpretations are dogmatized and absolutized, their language distorted. Scientific creation deformed by feedback is not able to perform its cognitive functions and starts hindering the technological growth of the country in the end.

Upon facing such contradiction the totalitarian regime must choose: either to ideologically “manage” sciences, but due to it increase the technological and thus military backwardness, or to close eyes in the face of ideological “impurity” of some sciences, first of all technology and physics, but receive the possibility to use the technological yield of those sciences. It is difficult to imagine how exact sciences could survive without being forced to collapse into pseudoscientific methodologies, if not the strong desire of the political leadership to arm. The objective nature of science itself opposed to ideologization, punishing the adherents of ideology by inefficiency of science.

3.2. SCIENCE AGAINST TOTALITARIANISM

With such a dilemma evolved, repressions against exact sciences in the postStalinist period started to be reduced. Political regime, striving to protect itself further attempted to maintain social and humanitarian sciences in its full control which could influence the society strongly. So in totalitarianism the gap between the technical and exact sciences which developed and gained noticeable achievements and humanitarian and social sciences that were forced to further survive in the pseudoscientific state began to be more prominent.

Such condition of science seems to satisfy the political authorities which decided to somewhat reduce the totalitarian oppression of the society, but not to reject it fully. That way it was thought to coordinate the technological growth of the sate with the ideological control traditions of the society. However, the innovations of science, sometimes even through the channels of technology and exact sciences, may influence the society in the direction which is undesirable to the regime. A number of measures had to be taken to protect against such a

danger. First: science in the Soviet Union was separated from studies. “The separation quite evidently made it easier to control research and to direct it to serve the perceived interests of the Soviet State. It also facilitated the enforcement of ideological control over students.”[27] Second, most of research in exact sciences were carried out for military purposes, therefore the results were made secret. Third, exact sciences had to keep to certain requirements of ideological canon which came into force long ago, at least not to confront with the official ideology and to state in introductions to scientific works about the concern of the Communist party over science. Fourth, even though it becomes possible to engage without restrictions in exact sciences, still it was not possible to take up freely the philosophical problems of these sciences.

In this perspective when looking back to the Soviet Union of N. Khrushchev’s or L. Brezhnev’s times, it may seem that totalitarianism acquiring the human shape succeeded in keeping in his hands all social institutions, including science. L. Schapiro who studied this phenomenon profoundly acknowledges that totalitarian states failed in the essence to control the morality of people. Of social institutions not enslaved by social institutes he notices only the church which under totalitarian conditioned remained uncontrolled or at least partially controlled and therefore: “There has already been occasion to mention the churches as a force for resistance with the totalitarian societies because they offer an alternative moral standard to the one offered by the leader”[28].

The church really is a phenomenon alien to totalitarianism that is most easily observed. However, on the hand, its role could not be overestimated, and, on the other hand, striving to understand the dissatisfaction by Soviet totalitarianism spreading slowly and growing and to explain the roots of that dissatisfaction, it would hardly be sufficient to indicate the church as the alternative source of morality. Not intending to dwell on this issue specially I shall point out just several arguments. First, Soviet society was very secularized and the church already due to it could not be the main source of alternative values, since for many people it was no longer an important value. Second, the role of the church as the source of the ideals of freedom and values could not be overestimated because it rather is and was an authoritarian defender of conservative values than a propagator of liberal individualism And in the Soviet Union the collapse started on the basis of these values. Third, the church opposed Soviet regime primarily striving for freedom of religion. In Catholic Lithuania the demand for this freedom frequently was related with antitotalitarian antioccupation rhetoric (I have in mind the Catholic press). However, in Protestant Estonia and Latvia and Orthodox Russia there was no such interaction or it was not significant. Fourth, official structures of the church were loyal to the authorities. Frequently they were an obedient and even controllable tool of the authorities. Especially it should be said about the Russian Orthodox Church, even the highest hierarchs of which were obedient and subordinated to secret services.

In the presence of the indicated arguments I should dare to assert that it would be difficult to keep the church the main source of values, the more so the only source of alternative morality, alternative to totalitarianism. However, if we agree with the idea that the collapse of totalitarianism was not an accidental phenomenon, but was the result of the matured process, inexplicable just by the arguments of economic pragmatism or political power crisis, -

then we should also acknowledge *that already in the depths of totalitarianism alternative ideas and values were formed and matured*. If its main source was not the church, what was it? An answer is simple - contraculture. It was a manifold and variegated phenomenon embracing very broad opportunities of “internal emigration” from totalitarianism (more indirect but partly also the open opposition with the system in terms of values): jokes, unofficial songs, dissident writings, secret and implied “metaphoric” contents of official writings. However, all these indicated and not indicated sources alternative to official facade culture were surpassed by science. It is science, to my mind, that became the most important source of alternative values in Soviet totalitarianism, since it was open and in spite of the mentioned restrictions a rather easily accessible and influential social institute.

The church formally maintained its institutional and valuable autonomy, but in reality through the infiltrated agents, through obedient and timid hierarchy was affected by the totalitarian regime and even controlled by it. Science, from the formal point of view, was fully in the hands of the authorities, whereas scientific creation, its values and principles had to be given still more freedom. Rockets will not fly if you force them to fly according to the principles of physics “classically correct” and “more advanced” than those of bourgeois ones. Only to this reason immediately after Stalin’s death the regulation of many methodologies of technology, mathematics and natural sciences were refused to be regulated. As I have mentioned, this step was accompanied by several self-protection measures. However, they were not effective. First, the separation of research and studies did not alienate students from most modern knowledge, since the qualified generation had to be prepared for liberated science. Second, the secrecy of some scientific results did not predetermined the secrecy of methods, values and principles functioning in science. Third, the requirements of the ideological canon soon turned into a screen with holes not covering but rather revealing the deficiencies of the prevailing ideology and state philosophy. Fourth, together with modern theories modern world pictures were taken over to the public scientific use, including their various construction elements - both methodological and normative principles. More rare but still occurring attempts of ideologists and Marxist philosophers speak against either the interpretation of the red change in the star spectrum as the proof of the expansion of the Universe and its beginning or any other interpretation of physical facts contradicted to the logic of physics and facts and in the presence of scientific community still more discredited official ideology and State-implemented philosophy. Ideologemmae still obligatory and functioning in this context became still more formal and repulsive. Ideology claiming for its scientific character in the presence of science confirmed only occasionally its antiscientific character. This was witnessed by the entire history of science in the Soviet Union, which was known at least fragmentary by many representatives of science.

Thus the results of the liberalization of technology and exact sciences were considerably deeper then it was expected by the totalitarian authorities. With the rejection of control over exact and technical sciences it was not possible to control their world pictures. Exact sciences being further *formally* dependent on the whims of the Communist party and forced to perform ritual praises to the Communist party and Marxism were *actually* the first autonomous sphere of *public* thinking. And this fact, in my opinion, was of incomparably greater value at the collapse of totalitarianism than the long-term opposition of the church.

The first public sphere of the liberated thinking which opened was of incomparable value in the liberation of other spheres of spiritual creation. Liberating at least slowly, at least partially, at least by metaphoric forms of existence. The most terrible thing the totalitarianism may do to the freedom of the public and individuals is the constraint of public spiritual life, including thinking. From the first sight it may seem that the totalitarian State which constrained public life is unable to violate the inner life of each individual, i.e., his spiritual life. Any person may think freely even in prison, may not he? But is such formal possibility of individual freedom real? What does the possibility to think freely mean without the opportunity to receive information freely, without the possibility to change thinking products freely, thus to be criticized and accordingly to correct thinking? At last, such "freedom of thinking" is not only unreal, but socially not urgent..[29] Thus, the constraints of the publicity of thinking are the constraints of thinking in general[*].

It is therefore that totalitarianism giving the freedom of thinking to natural and technical sciences have made the first and fatal crack in the totalitarian monolith. It is impossible to give freedom for free creation in a certain sphere of science. Due to the links between sciences and all social institutions, all cultural spheres in general, the scientific principles of the slowly liberated sciences and their social status start migrating to the other sciences, social institutes, spheres of culture. Thus the freedom of thinking evolving in one and seemingly socially not very urgent sphere starts to spread slowly, encompassing new areas. Where its expression was not possible in open forms, it acquired other shapes (e.g., the mentioned "metaphoric" contents in the spheres of artistic creation).

Alongside the powerful ideological press which until then predetermined the fate of science, another factor deciding the development of science started to reveal itself and consolidate through the liberated natural and technical sciences - world science community, its effect on the values and realities of scientific (and in indirect meaning also public) life. Science was alive to the extent and there where it could develop according to its own inner principles. Without succeeding to ideologize many branches of natural sciences, to force them to live according to the fabricated principles, the State had to reconcile with the autonomy of natural sciences and even to expand it. This, not taking into account the mentioned results, stimulated the decrease in Soviet isolationism and hermeticity of social mode of life. I think no more broad comments are needed as concerns the importance of this circumstance in destructing totalitarianism and with the integration of the former USSR republics into the flow of world civilization. With the decrease in the level of totalitarian control, this tendency became still more stronger. In the 7th-9th decades science became a window, still more important and scarcely controlled, in the "iron curtain" to the West. Scholars in exact and technical sciences were allowed to read Western literature, and sometimes even to participate in scientific events. The ideas and principles of science - the most important component of 20th-century culture- started coming to the USSR more freely, they sobered the thought and encouraged the dissatisfaction with the regime.

Thus it is possible to state that with the liberalization of technical and natural sciences in the Soviet Union conditions were created to take over the use of the creative principles of these sciences, the stereotypes of thinking, values, scientific world picture. At first these principles, these values acquired the possibility to express themselves only in separate spheres of science and only partly. However, it was the preparation of the soil for the still strengthening expansions of these principles and values informally and slowly into other branches of science, and gradually to other areas of culture. Totalitarianism which admitted the opposite phenomenon to the system - uncontrollable scientific creation in technical and natural sciences "encompassed" all that was subject to encompassing. It seems that a mean and innocent non-systemic phenomenon steadily pierces through the entire totalitarian system by its principles, linking them by informal ties, stimulating the creation of contrasystematic formations in it.

In terms of such a view, it becomes clear why the voices of scientists were so socially distinct during the fall of the totalitarian regime. With the consolidation of democracy, they came back to their laboratories. In view of this as concerns the Western democratic states, it becomes clear that it not by accident that the conspicuous 20th-century scientists M. Planck, A. Einstein, W. Heisenberg, B. Russel, K. R. Popper, M. Born and many others dedicated many a report or book on discussing the problems of society. In fact, society in these works is using the scale of principles that were established in scientific coexistence. That activity cannot be said to be without results or not urgent.

From the above-said the following *conclusions* could be made:

1. Totalitarian ideology has an effect on science claiming for presenting "scientific" methods of thinking to science, i.e., starting the revision of scientific world picture. Such measures of effect constrain the fundamental scientific creation.

2. Considering the history of totalitarianism and its collapse in the Soviet Union, the role of the church is commonly too strongly underlined and the impact of science in producing and maintaining the values alternative to totalitarianism in social use is stressed insufficiently. When ruining totalitarianism and values propagated by the totalitarian State, science and scientific public were of special beneficial service. Their principles and values had a strong effect on the entire culture, including political, which just took over many principles and values of scientific community.

3. Science and values functioning in its use played a very important social role in the degradation of totalitarianism due to the following circumstances:

a) technical and exact sciences, liberated from the oppression of totalitarian ideology, became the first sphere maintaining the autonomy of its contents and creation principles;

b) sciences and the principles of their creation were strongly intermingled, therefore liberation in one sphere passes over to the others;

c) at the age of science the principles of rational thinking, scientific work traditions and values functioning in the scientific community had a strong effect on the public, all the spheres of culture.

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[*] Therefore we can raise a question with grounds, if totalitarian society is rationally thinking.

4. THE SITUATION OF SCIENCE IN LITHUANIA AND OTHER BALTIC STATES

Lithuania and other Baltic states have been existing on the arena of Western and Eastern cultural and political traditions as well of the division of the spheres of influence for already several centuries. Various spheres of culture, including science, here developed and perfected mostly taking over Western traditions. However, the political Eastern interventions have more than once interrupted this forming coherence of cultures and science of the Baltic countries. Therefore from culturological and sociological standpoints Lithuania, like other Baltic republics, seems to be similar to me to specific laboratories where cultural processes that took start naturally and which with the interference of external intervention are artificially broken to be looked upon later how the remnants of broken cultural structures under the effect of synergetic processes start to restore themselves unless eventually the consolidated cultural structure overcomes the external political impact itself. And such "experiment" here was carried out more than once. We have already mentioned the first Russian occupation in 1795 and the subsequent radical deintegration of the condition of science and culture. The history repeated similarly in the middle of the 20th century.

Here I shall discuss the history of science as natural component of the politically predetermined reintegration and relevant problems in Lithuania and other Baltic states.

4.1. THE PERIOD OF INDEPENDENCE

Science has come to the Baltic states differently in terms of time and had a different history. Lithuania had Vilnius University, the oldest in Europe, which was established in 1579. However, due to the mentioned political circumstances it was closed in 1832. With the Medical-Surgery Academy closed in 1842 Lithuania prior to the declaration of independence in 1918 had no higher school. The Gustaw Academy operated in Estonia from 1632 to 1710, and in 1802 Tsar Alexander I established Dorpat University[30]. In Latvia the Riga Polytechnic Institute functioned from 1862, which at the turn of the 19th-20th centuries even became the centre of stereochemical research with the conspicuous authority in the sphere of physical chemistry and philosopher W. Ostwald and his disciple P. Walden at the head[31]. Science as the entire national culture at the end of the 19th and the beginning of the 20th centuries was mostly restricted in Lithuania which could boast of the oldest traditions of science, striving by all possible means to reduce the number of national intellectuals and thus to subdue the spreading of national moods. In spite of these restrictions the stratum of national intellectuals which cared for national culture and cherished the ideas of independence matured and consolidated in Lithuania, and in 1918 it was able to mobilize the nation for the armed struggle for independence.

The Baltic states that regained their independence in 1918 started integrating at a very rapid pace into the flow of Western culture, including science. Tsarist higher education institutions taken over in Latvia and Estonia were

expanded and reformed on the grounds of the national language and culture and in accordance with the needs of new states[32], and Lithuania started creating its own system of higher education almost from the zero. Tasks that had to be implemented immediately in the sphere of science and education with the poor financial possibilities of the young states were enormous. In the course of some years it was necessary to create the education of all levels and with many branches, to find lecturers for universities, to prepare textbooks in national languages, to provide higher schools with premises, laboratory facilities and materials, to organize the studies of the most gifted young people abroad. Everything was in lack, even national scientific terminology. However, intellectuals and political authorities of the new states looked upon the overcoming of backwardness in the spheres of science and higher education as to the elimination of the cultural heritage of the hateful tsarist regime[*]. A similar approach was deep-rooted also in the nations.

Almost simultaneously in all the Baltic states in 1919 national universities were organized and reorganized. Active organizational and educational activity started yielding its fruit comparatively quickly. Judging from many signs, already during the incomplete decade, i.e., at the end of the third decade the dynamics of science and education was synchronized with Western education and science tendencies in these states[33]. The essential moments of this process were: 1) rapid creation and growth of institutions of higher learning; 2) the autonomy of these institutions from political power; 3) rapid integration of the Baltic countries into the world scientific community; 4) pluralistic atmosphere for scientific disputes and philosophical interpretations of science theories and results. Within the short period the traditions of scientific creation that were characteristic of Western countries were created and became established in the Baltic states, scientific links were expanded, universally accessible scientific literature was received, national scientific journals were published, disputes over themes of sciences under study, over the issues of science world picture and science philosophy were held.

It is understandable that much was lacking, but social institutionization of science and studies important for young states was implemented in fact. It was necessary just to permit this social institution to expand. Even though in the middle of the 3rd decade in Lithuania and Latvia authoritarian regimes came to power, the liberal traditions forming in the sphere of science were not broken. In this respect Lithuania and other Baltic states did not differ from many European countries. Favourable liberal pluralistic climate for expressing opposite views and their interaction remained intact throughout the whole period of independence. The same was felt by scientists themselves, underlining occasionally the necessity of such pluralistic situation for normal existence of sciences, simultaneously criticizing the attempts of national interpretation of science history in fascist Germany and administrative management of science and the implementation of mechanistic world picture in USSR[34].

[*] In Lithuania such an approach has deep roots: the tsarist regime in Lithuania restrained even the usage of the Lithuanian language. Here the press in Latin letters and teaching in the Lithuanian language were banned even at primary schools. Therefore here existed a wide network of underground schools, book publishing and distribution. Therefore education in the Lithuanian language had become the matter of national honour, and science and erudition were treated very highly and had no negative evaluation, of which we spoke when discussing the traditions of the approach to science in Russia.

However, these positivistic tendencies could express themselves in the Baltic states only before 1940 when these states were occupied and incorporated into the USSR. Together with the political regime the situation of science and education changed radically here. All that was criticized recently and mocked became the form of everyday existence of science and education.

4.2. SCIENCE IN LITHUANIA AND OTHER BALTIC COUNTRIES UNDER THE CONDITIONS OF SOVIET OCCUPATION

Lithuania, Latvia and Estonia was incorporated into the USSR at the most severe period of Stalinism and the fate of science like that of the nations themselves was predetermined in these countries greatly by the above-discussed circumstances, characteristic of totalitarianism. However, there were specific features as well.

In the sphere of science of the Baltic countries the following changes occurred in 1940-1941: links with the world science union were broken; science was ideologized; science links with culture and education were limited, terror against scientists and separate scientific trends was started; many newspapers and magazines of the independence period, including scientific ones, were closed. It meant all those dreadful processes that took place until then somewhere far away - in the Soviet Union - started here.

In 1941, hardly a year after Soviet occupation mass exiles started, where intellectuals suffered first of all. It continued not very long, since the Baltic states in the summer of 1941 were occupied by Germany. At the end of 1994 together with the German army retreating from Lithuania, about 120,000 residents, among whom almost half of the staff of Lithuanian professors and students, according to various calculations, escaping from the possible Soviet terror, moved[35]. Exiles and arrests that once again started in Lithuania also affected scientists painfully. Repressions were carried out at a large scale, but the heritage from independent times was felt in the Baltic states until the very restoration of independence in 1989, including the sphere of science and education. Despite of all exiles and the cleaning of cadres in Lithuania, the scholars of the period of independence still worked, gymnasia pupils studied at higher schools, and teachers of the independence period worked. For regime it was most difficult to overcome an approach to science and education, differing from that in Russia, that was handed over from generation to generation for more than one decade and related to national ambitions. It was difficult to completely and quickly exterminate the traditions of science and education of the independence period, the started scientific themes, the acquired values of scientific and pedagogical work even with the use of physical terror. In the Stalinist epoch it was difficult to carry out this, and later there were no drastic measures for it.

In 1944-1953, attempts were made to strongly Russify the higher schools in the Baltic countries. However, after Stalin’s death the process of Russification began to weaken. As soon as the reins were slackened, universities started to nationalize again: the forced Russian language in lecture-halls was replaced by indigenous languages, and the lecturers brought from abroad were rapidly changed by local scholars. Science and education

demonstrated the viability of traditional principles and values. Even though the rapid colonization was effected, it was not possible to colonize culture - the indigenous population in the Baltic states managed to preserve the dominating position in the spheres of science, education and culture.

Antiscientific campaigns prevailed in Russia during the occupation of the Baltic countries. In the Baltic countries they did not manifest themselves strongly - local authors did not show any initiative to speak for or against genetics and quantum mechanics, the theory of relativity and other persecuted subjects of science. In Lithuania immediately after the occupation all scientific and philosophical polemics terminated at once. Communist authorities started to translate at once the works of Lenin and Stalin that had to substitute all "bourgeois" philosophies and to become the guide of science, the only officially institutionalized philosophical discipline. With such a terrible contrast of recent past and present local scientists just kept be silent. To consolidate a final victory of Soviet science against bourgeois science, the Communist party ideologists had to be satisfied with some articles on the philosophical helplessness of the theory of relativity, the "machistic" axiomatic method and the necessity to correct this theory, translated from Russian[36], but Lithuanian scientists preferred to keep silent on this issue.

Soviet system was forced upon the country with democratic experience that recognized the Western values. Therefore Soviet system and ideology were alien to the majority of the population, and intellectual opposition against this ideology was strong from the very beginning of the occupation. The afore-mentioned dualism of the formal ideologized part of the public life and the spiritual content in the dissident position started to manifest immediately after the occupation and in a more contrasting form than in Russia. In the Baltic countries, like in Russia, science became an "incubator" of intellectual opposition to totalitarianism, but differently from Russia here the intellectual opposition acquired a national shade. Therefore with the beginning of *perestroika*, almost simultaneously in 1986 in the Baltic states the national liberation movements emerged that were initiated and headed mostly by scientific and cultural figures. It is also symbolic that the establishment of *Sàjûdis* (Revival Movement) in Lithuania occurred at the Academy of Sciences, and the pretext of this was a scientific discussion about the autonomy of Lithuania's economy in the composition of the USSR. With the ideas of revival governing masses, scientific institutions and universities in 1986 -1990 (and especially in 1988 -1989) became a powerful engine of ideas and organization in the liberation movement of the Baltic countries. It is not accidental that M. Gorbachev who came on a visit to Lithuania in 1988 to calm down the forces striving for independence called *Sàjûdis* the "professors' plot". Probably, he was not wrong in terms of the genesis of the revival movement for independence. However, he could witness that this "plot" was not that of professors but was a national movement.

4.3. SCIENCE AND INDEPENDENCE

Science develops when intellects rush to it, and this occurs when scientific activity seems to be a prestigious and beneficial pursuit. After gaining the independence quite significant financial problems and simultaneously those of the change in the values came forth. Social environment and simultaneously the values of the society change rapidly in the contemporary societies of the Baltic countries. Quite a lot of spheres that were not existent previously appeared for manifestation of creative and active personalities. In Lithuania only in 1990-1993 the number of scientific employees of applied sciences reduced almost thrice, at State institutes for about 1.4 times and only in the universities their number had not almost changed[37]. Part of them flowed abroad, part - to business or governmental structures.

Such processes are characteristic of the former Communist camp states[38]. However, the evaluation of this phenomenon is rather different. I.M. Rabkin and E.Z. Mirskaya think that in the Soviet period in Russia science was turned into a total religion, militant scientism[39] ("Russia became a fertile ground for turning science into a total religion, for the blossoming of militant scientism"). It is that way they argue the wish, then fixed by sociologists, to strive primarily for professional career. These authors are contradicted by A.V. Yurevich and I.P. Capenko. The said scientists relate the enormous authority of science to the romaticism of scientific activity which was not hindered by Soviet ideology and which arose spontaneously since it was "a necessary respite of mass consciousness in the closed and gloomy reality of Soviet space[40]. The latter explanation to me was more acceptable but I would like to modify it more significantly. Science, in my understanding, always seemed valuable to the society not due to its romaticism, but rather to its liberalism, more free existence. That is the prestige of science was high, exactly not due to the ideological deformations of social consciousness and not only to the wish of parents that their offspring would enter the privileged stratum (why then the career of Communist party leaders was not desired) but due to the social status acquired by science: status of one of few liberated social institutions. It was not possible under this regime to escape from the condition of falsehood, oppression and the dual mode of life. However, there did exist the already discussed possibility of "inner emigration" from this regime and mostly "emigrating" to science. Thus it was possible to find in this State the least ideologically affected areas, where even very intellectual, interesting and socially valuable functioning could do almost without smearing itself with ideologocal hypocrisies. Parents were willing to see their childrem respected, free and not hypocrites. So what else they could wish except science?

To my mind, such arguments are suitable for explaining the decline of prestige in post-totalitarian states. However, I would not agree with the opinion of A.V. Yurevich and I.P. Capenko that this decline may be explained by the victory of "kiosk psychology"[*] over the said romanticism that "why anybody should discover or invent something, if it is possible to buy it ready"[41]. In the democratic society the values in the society turned to the edge not so favourable to science, that is science lost the monopoly of the status of the only social institution

[*] As a matter of fact. I cannot also keep from speaking against the negative evaluation of such "kiosk psychology", the emergence of which witnessed that the freedom of entrepreneurship appeared. Entrepreneurship was related with freedom not less than science and not less cherished institute as science. It especially should be said about the authority and values of this activity.

liberated from the command of political power it had in Soviet times, since the areas of activity appeared that were suitable for free individuals to reveal themselves, the more so that they were more satisfying the material welfare. Science lost the symbol of freedom, became one of the professions, but not “the only island of freedom”. In this sense, science was dethroned, since it was given an adequate place as equal among equals, alongside other rather autonomous areas of activity. Thus for creative personalities to express themselves many new possibilities appeared. Therefore those to whom science was not a vocation left it.

The society must reevaluate the former values and their hierarchies. This reevaluation occurs not only in one direction. For example, in Lithuania in 1990-1993 there was a decline in science authority and the retreat of scientists to the other spheres of activity, the aging of scientists was observed. In 1994-1995 this process subsided in fact and since 1996 the other tendencies started to reveal themselves - youth started to apply again to scientific institutions.

The discussed change of values and losses of scientific potential is not the only fatal factor predetermining the condition of science in the states that restored their independence. In 1990-1997 there were noticeable transformations in science and studies when a science situation was affected not only by these, but also by other factors: 1) the possibilities of the State and economic subjects to finance science decreased, an approach to the sources of such financing was liberalized; 2) the order of adopting State priorities for science financing got changed as well as their understanding; 3) the need arose to restructure and demilitarize science, to reorient it and annihilate some inefficiently functioning and not important trends; 4) therefore the problem of the expediency of financing of separate trends of science, thus the evaluation of their achievements, came forth. In the sphere of studies the necessity arose to prepare new curricula and textbooks, to introduce new courses (politology, international law, some branches of philosophy and economics, etc.). Thus the status of science and studies changes in the society, as do their structure, research priorities and trends, volumes and sources of financing.

The main objectives of science and study reform in Lithuania were: reorientation of science and studies to the needs of Lithuania, the extermination of scientific institutions of departmental dependence and autonomization of the institutions, promotion of self-financing, integration of science and studies. Changes occurred in all these trends, but as a special expert group involved in the evaluation of the condition of science in Lithuania stated the State policy of science and studies still has many traits of spontaneity. The insufficient coordination of the institutions of science and studies, not optimum structure of institutions, not clear priorities of financing and irrational system of financing did not encourage the desirable renovation and rejuvenation of science, its modernization and integration into the world flow of science[42]. Long ago the strict administration of State science forced by Russia and its financing, having clear militaristic priorities, was changed for some time by spontaneous and intuitively effected State policy of science and studies. To implement the goals defined it was not the best method either for the government or for scientific community. Therefore taking into consideration the experience accumulated in other states in the sphere of science management in the democratic society it is possible to

establish what should be changed and in what direction. The State should not regulate the content of science and studies in terms of administration, but must leave it in the hands of scientists and professors themselves. It should not interfere into the already existing activity of non-state institutions of science and studies or their creation, if it does not contradict to the obligations of international business. But as far as the State finances science and studies, it must do it rationally and efficiently to the maximum.

Completing, we shall make the following *conclusions:*

1. In just ten years after the declaration of independence in 1918, all typical world science structures of the period already functioned according to the principles universally adopted in the scientific community. With Russia's occupation of the Baltic states in 1940, the forced political regime introduced the ideological supervision of science, repressions against science and scientists started. In spite of that the experience of social institutionalization of science during independence was not fully destroyed and had certain ties with national identity.

2. In 1986 the revival movement in the Baltic states evolved in the ranks of intellectuals. It based, on the one hand, on the antagonistic modern science and modern scientific community values and principles, and, on the other hand, on national values which in the course of history in the Baltic states (especially Lithuania) in the negative meaning had acquired links with education and science values. That link of negative character between liberal science and national values was an opposition based not only on civil, but also on historical-national consciousness to the existing for a long time official scientific and educational system, thrust by the political force and its antinational and authoritarian character both in the years of tsarism and Soviet oppression.

3. The restoration of independence and relevant socio-political changes gave start to the considerable changes in science and studies. The flow of scholars to the other spheres of activity besides the economic motives was stimulated by transformations of the status of science.

ENDNOTES:

[1] See, for example, a. Podlech's assertion: Podlech A. Hochschulen im Spanungsfeld zwischen Politik und Wissenschaft.- In: Politik und Wissenschaft. Ein Cappenberger Gespräch,- Köln und Berlin, 1972, S. 16.

[2] See: Popper K. R. The Logic of Scientific Discovery. - London, 1959.; Lakatos I. History of Science and Its Rational Reconstruction's.- Boston Studies in the Philosophy of Science , vol. VIII. (In Memory of Rudolf Carnap). - Dordrecht, 1970. p. 91-136.

[3] Lakatos I. History of Science and Its Rational Reconstruction's.- Boston Studies in the Philosophy of Science , vol. VIII. (In Memory of Rudolf Carnap). - Dordrecht, 1970. p 98-99.

[4] Ibid.: p. 127-130.

[5] See: Merton R. K. Sociology of Science: Theoretical and empirical investigations. - Chicago, 1973.

[6] See: Kuhn T. S. The Structure of Scientific Revolutions. - Chicago. 1962.

[7] See: Storer N. The Social System of Science. - NY 1966.; Hagstrom W.O The Scientific community. - NY 1965

[8] See, for example, Lohman U. Wissenschaftspolitik und Demokratisierung.- Düsseldorf, 1973.

[9] Weber M. Gesammelte Aufsätze zur Wissenschaftslehre.-Tübingen, 1988, S. 600.

[10] See: ×åðíîçóá Ñ. Ðîññèéñêàÿ íàóêà: ïðîøëîå, íàñòîÿùåå, áóäóùåå.- Âîïðîñû ôèëîñîôèè, 1996, Íî.1 ñ.65.; Ðàêèòîâ À.È. Ðîññèéñêàÿ íàóêà è Ðîññèéñêîå ãîñóäàðñòâî: òðàäèöèè âçàèìîäåéñòâèÿ.- Îáùåñòâåííûå íàóêè è ñîâðåìåííîñòü, 1995, Íî.3 ñ.15.; Þäèí Á.Ã. Èñòîðèÿ ñîâåòñêîé íàóêè êàê ïðîöåññ âòîðè÷íîé èíñòèòóöèîíàëèçàöèè. - Ôèëîñîôñêèå èññëåäîâàíèÿ, 1993, Íî.3 ñ.90.

[11] ×åðíîçóá Ñ. Ðîññèéñêàÿ íàóêà: ïðîøëîå, íàñòîÿùåå, áóäóùåå.- Âîïðîñû ôèëîñîôèè, 1996, Íî.1 ñ.65.

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