

HISTORY

THE TRIUMPH OF LYSENKOISM IN BULGARIA: THE BIOLOGICAL CONFERENCE (SOFIA, 4–8 APRIL, 1949)*

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Summary: This paper focuses upon the relationship between the July 31 – August 7, 1948 VASKhNIL conference in Moscow and the follow-up session held in Sofia the next year (April, 1949), during which the dominance of Lysenkoism was affirmed. The preparation and organization of the meeting – a dark echo of the August session – are also described. The events at the conference, resembling a medieval trial where biologists were forced to disclaim their Mendelist views and swear to adhere to the new Lysenkoist credo, are depicted. The leadership of the Bulgarian Communist Party at the Conference organized to reject classical genetics and impose Lysenkoism is underlined. The dramatic fate of scientists abused for supporting Mendelist-Morganist-Weismanist concepts and not accepting the pseudo-scientific Lysenkoism is highlighted by the fate of the eminent geneticist Prof. Dontcho Kostoff. The negative consequences of imposing Lysenko's teaching are examined. These include: compromising the biological education of several generations, which was particularly harmful for the formation of agronomists and physicians; distortion of biological research and the deleterious impact upon agriculture related to the basic problems of food supply. The moral damages caused by dictatorship in science and society are also summarized.

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Abbreviations: BAS – Bulgarian Academy of Sciences; VASKhNIL – All-Union Academy of Agricultural Sciences.

*„You hold the Universe like a bead”
/Anna Ahmatova, Russian poetesse,
“To Stalin”/*

The Lysenkoism arose in USSR still at the early thirties of the past century as a teaching named after the agronomist Trofim Denisovich Lysenko (1898 – 1976) who developed it as a complex of theoretical postulates and

practical approaches largely applied in agriculture. This concept rejected the classical chromosomal theory of heredity (Weisman, Mendel, Morgan) and imposed the view that the whole organism, but not genes, is a carrier of heredity, and that

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the organism can easily be transformed by “education”. Genetics was denied and proclaimed as a “reactionary” science. Completely erroneous views and recommendations for the agronomical practice flowed from these ideas, having heavy negative economical impact. The phenomenon of the Lysenkoism arose as a specific, unique product of the dictatorial totalitarian communist regime in USSR. The violent interference of the Communist Party-dominated State Government into an exact science such as genetics seems so absurd to present generations that they refuse to believe this really happened. Now it sounds far from common sense to reject and politically label a science - whatever it is - as “reactionary”, “bourgeois”, “imperialistic”, “idealistic”, “capitalist”, “metaphysical”, this referring not only to genetics, but also to statistics, cybernetics, theory of relativity, etc. At the same time the Michurin – Lysenko teaching favorite of the Communist Party was declared as “the only true” and “only progressive” concept in biology. Most importantly, to reject “reactionary sciences” no intellectual arguments were used but the tools of moral and physical terror peculiar to dictatorial regimes while Lysenkoism was imposed by political means. These characters as well as the analysis of the communist ideology and Lysenkoism suggested the idea about the considerable compatibility between them.

Basic principle of communist ideology is the revolutionary, violent intervention into the social structure, this corresponding to the “revolutionary” interference into the nature characteristic of Lysenkoism. It can be illustrated by the slogan so popular in the ex-communist countries: “We must not wait favors from

the nature. Taking from it is our task”. The transformation of society logically flowing from the former principle is fully compatible with the ambition to transform the organisms which is a milestone of Lysenkoist teaching. It is exemplified by Lysenko’s absurd claiming about transformation of wheat into rye and vice versa, winter wheat into spring wheat, etc. Similarly to violent social rearrangements by class struggle, transformation of organisms should be done by “education”, subjecting them to harsh conditions (“tortures” in Lysenkoist terminology) adequate to the desirable trait (for example, very low temperatures should be used to “educate” cold hardiness). Thus the environmental conditions are assigned a dominant, determinant role. Full negation and abolishment of the former society, and extermination of old classes proclaimed by communist ideology (and employed in the social practice) can be compared to neglecting, even rejecting of heredity and hereditary structures by Lysenkoism. Expressions like “genes that nobody has seen”, “chromosomes may not exist at all”, “genetics is a pseudoscience”, “directed management and changing of heredity”, etc. featured the language of Lysenkoists (Soyfer, 1993). In other words, social order is not fixed, and easily undergoes perturbations; correspondingly, heredity is a fiction while environment is a determinant and variability is an absolute. “I am made, not born”, stated Lysenko (Soyfer, 1993). Dictatorship of one class, even of one person, intrinsic character of communist ideology, classically expressed in ex-USSR and personalized by Stalin, has its counterpart in the dictatorship of Lysenko’s doctrine and personally of Lysenko in biological sciences.

Moreover, the ideologically-postulated domination of one class (the working one!) is comparable with giving priority to the practice, particularly to the work in kolkhoz fields, opposing it to the “useless theoretical research”. “Collective farmers give more than professors” (Soyfer, 1993) perfectly expresses Lysenkoist mentality charged with “class hate” to intelligentsia.

Both Stalin and Lysenko were perfect psychologists. By instinct and by experience they knew well the psychology of the masses, the personality, and the power, as well as how to exploit this. Stalin needed persons like Lysenko fitting his own mentality, behavior, and politics. Lysenko felt how to adjust to Stalin’s wishes and ideas.

Preparation of a Lysenkoist conference in Bulgaria

A dramatic, Soviet Communist Party-dominated event heralding the crushing of classical genetics and the dominance of Lysenkoism, largely known as August Session of VASKhNIL (Moscow, July 31 – August 7, 1948), echoed in the Soviet-allied states under the slogan “two ideologies – two biologies”: communist, progressive – of Lysenko-Michurin, versus capitalist, reactionary – of Mendel, Weisman, Morgan.

Bulgaria was in the first line of the fight against “reactionary” biology defined as “class struggle.” Threats and attacks were addressed against outstanding, world-wide recognized Bulgarian biologists, accused of standing-up their former “reactionary” scientific positions (Mendel-Weisman-Morgan) qualified as fascist, and not-entirely accepting the new, progressive Michurin-Lysenko teaching.

Still in November 1948 the daily

newspaper of the Communist Party “Rabotnichesko delo” published three consecutive articles under the common title “The biological science in our country in the light of Michurin’s teaching” (Emanuilov, 1948). The author sharply criticized the professors Zhelyo Gantcheff, Stanko Petroff, Nicola Arnaudoff, Stefan Konsuloff, Mihail T. Christoff, the main targets of attacks being the most eminent Bulgarian biologists Prof. Dontcho Kostoff and Prof. Methodii Popoff.

Prof. I. Emanuilov accused Prof. D. Kostoff of not referring to the works of Lysenko and Michurin despite having been aware of them. He negatively appreciated the Mendelist – Morganist views of Prof. D. Kostoff by citing texts most indicative of Kostoff’s wrong positions: “The science of heredity, one of the most modern biological disciplines, points that the inheritor can possess only that characters which the parents possess. This means that humans, animals and plants inherit all characters from their parents. The inheritors have nothing more than their parents have”. Further he critically stated: “Morganists entirely reject the somatic character of the evolution and affirm that it is of germ nature. They claim that the germ plasm or the chromosomes determine the evolution of organisms” (Emanuilov, 1948).

Then Prof. Emanuilov, criticizing Prof. M. Popoff, cited parts of his textbook “General biology” (1947): “Now it is firmly established that the chromosomes are carriers of corresponding genes, of corresponding hereditary factors; today we don’t speak of a hypothesis but of a strictly physically determined and proved chromosome theory of heredity”. “Indeed, genes are endowed with the property

of self-reproduction”. The sarcastic comment is: “Who endowed them? God, may be?” (Emanuilov, 1948).

The next, more sinister act of the scenario was performed in December 1948 at the Fifth Congress of Bulgarian Communist Party, the supreme Party organ, opening the gates for full sovietization of the Bulgarian state. From the Congress tribune the Party leaders Vulko Chervenkov, Minister of Culture, Science and Art, and Titko Chernokolev, Vice-Minister of Agriculture, addressed accusations and open threats against the adherents of “reactionary” biology. Prof. D. Kostoff, having the most significant scientific weight as a recognized geneticist, was again the main target of attacks. To realize how dangerous the judgments by the Communist Party were, one must be aware of the political history of Bulgaria after its occupation by the Red Army (September 9, 1944) and the

establishment of a dictatorial communist regime. Thousands of people belonging to the democratic political opposition were killed without being sentenced, private property was nationalized, and human rights were totally suppressed.

The Biological Conference (Sofia, 4–8 April 1949)

The culmination of the drama of Bulgarian biologists was the so-named Biological Conference, its theme being formulated as “The situation of the biological science in the country in the light of Michurin’s teaching”. It was organized by the Bulgarian Academy of Sciences (BAS), while inspired and strongly dominated by the Communist Party.

Over five hundred scientists from all branches of biology and related to it agronomy, forestry, animal husbandry and veterinary medicine were forced to attend



The presidium of the Biological Conference (Sofia, 4 – 8 April 1949). Prof. Christo Daskaloff delivering the basic report. Sitting (from left to right): vice-minister T. Chernokolev, President of BAS T. Pavlov. Others - not identified. Text of the slogan: “We must not wait favors from the nature. Taking from it is our task”.

the Conference; thirty seven statements were delivered.

In the opening speech of the President of BAS Acad. Todor Pavlov, the basic report of Prof. Christo Daskaloff, and the concluding speech of the Vice-Minister Titko Chernokolev sharp criticism was again addressed, and the urgent reorientation of biologists towards Michurin-Lysenko teaching was pointed out as the only progressive perspective for development of biology and husbandry in new, socialist Bulgaria. The support to the policy of the Bulgarian Communist Party and the USSR was definitely expressed (Anonymous, 1949).

The criticism of the leaders was addressed mainly to: maintaining the chromosome theory as a basis of biological research; accepting the genes as hereditary structures; neglecting the “directed management” of heredity by “education” of organisms; not-acceptance of the heritability of “acquired” characters; reserves about the large application of vegetative hybridization; carrying out theoretical research qualified as “sterile” and “useless”; no contribution to the solution of practical problems of the society, such as development of new, useful agrotechnical approaches, improved plant cultivars and animal races; working with objects of no economical importance such as *Drosophila* and other model organisms (Anonymous, 1949).

The statements of all other speakers were impressively uniformly-built. The accents were on: criticism of Mendel-Weisman-Morgan “reactionary” concepts; criticism of the work of eminent Bulgarian biologists; self-criticizing the own “mistakes” and negation of the former research; admiration of the achievements

of the progressive Michurin-Lysenko biology; promising full reorientation to Lysenkoist positions; declaration of faithfulness to the socialist system and USSR.

In the speeches of the leaders and participants strange definitions featuring their confused state were contained. “Genes are only subsidiary notions”; “Genes are the requirements of the organisms”; “Heredity is the property of organisms to require a definite type of environmental conditions”; “Heredity is changed parallel to the variations of environment”; “Dominance of characters is changing according to the environment, and can be managed by environmental impacts”; “Vegetative hybridization is the best argument against the chromosome theory of heredity”; “Vegetative hybridization is a method to change heredity”; “The phenotype - genotype distinction is idealistic”; “Dialectical materialism is the only right method”; “Practical problems cannot be resolved by people dealing with cytology, polyploidy and chromosome aberrations”; “The importance of scientific institutions should be measured in kilograms”; “The science of Michurin - it is a science of kolkhoz farms”; “The science in the USSR entered the kolkhoz fields, the same must be done in Bulgaria”; “Kozlovka (Michurin’s experimental site) abolished Morgan’s laboratory”, etc. (Anonymous, 1949).

The dominating feeling of the participants was fear hidden behind the mask of repentance or aggressiveness. Thus, the Conference was not a free meeting of scientists but rather resembled a medieval trial where all participants were defendants for scientific views.



Prof. Methodii Popoff
(1881 – 1954)
Member of BAS



Prof. Dontcho Kostoff
(1897 – 1949)
Member of BAS

The main objects of criticism of the speakers were the most prominent Bulgarian geneticists – Professors Dontcho Kostoff, Mihail T. Christoff, Gentcho Gentcheff and Georgi Hlebaroff, as well as the physiologist Prof. Methodii Popoff.

Prof. Methodii Popoff (1881 – 1954), member of BAS, was a very eminent, internationally-recognized plant physiologist. He was one of the founders of cell physiology and cell stimulation theory, disciple of the famous German biologists R. Hertwig and R. Goldschmied. Prof. M. Popoff was mainly criticized for being related to eugenics; carrying out of useless theoretical research; referring to Erwin Schrodinger's remarkable work "What is life?" (1944), postulating physical principles as a basis of life, thus opening new horizons in biology (Anonymous, 1949).

The outstanding geneticist Prof. D. Kostoff (1897 – 1949), member of BAS, was the author of more than two hundred works on genetics, cytology, cytogenetics, immunogenetics, and related to them interspecific hybridization, polyploidy, evolution, phylogenesis, mutagenesis, cancerogenesis (Kostoff's tumors) published in the most prestigious journals (Rukmanski, 2007). His famous monograph "Cytogenetics of the genus *Nicotiana*" (Kostoff, 1941 – 1943) remains a precious tool in tobacco research until now. The scientific career of Prof. D. Kostoff (graduated from Halle University, Germany) followed a Rockefeller grant specialization in Harvard University, Boston, USA (1926 – 1929), and work in the Laboratory (later Institute) of Genetics in Leningrad, USSR (1932 – 1939) in close cooperation with the eminent biologist N. I. Vavilov. During his stay in

USSR Prof D. Kostoff was in the center of controversies between Lysenkoists and supporters of classical genetics on the side of the latter (Rukmanski, 2007; Edreva, 2009). Moreover, he co-authored one of the first papers criticizing Lysenkoism from strictly scientific positions (Konstantinov et al., 1936). Reasonable arguments unhappily proved futile... Realizing the danger from political repressions he returned to Bulgaria (1939) and headed the Central Agricultural Research Institute in Sofia (Edreva, 2009).

After the August session of VASKhIL (1948) Bulgarian communist authorities hoped that Prof. D. Kostoff would face the new realities, i.e. would give up his former views and works based on classical genetics, while declaring faithfulness to Lysenkoism. The public reorientation of the eminent geneticist would have been of enormous importance given his unquestionable scientific reputation and impact in the country, as well as his large international recognition. However, he remained silent, far from public manifestations and statements. Instead of recognizing former mistakes, in the period preceding the Conference he tried to convince Party and State leaders in the absurdity of the accusations against him and to reveal the scientific truth.

The archives still keep his addresses to Prime Minister Georgi Dimitrov, Foreign Affairs Minister Vasil Kolarov, Minister of Culture, Science and Art Vulko Chervenkov, Vice-Minister of Agriculture Titko Chernokolev (Edreva, 2013a). Any reply from them has never been obtained. On the contrary, as previously noted, Prof. D. Kostoff was the main attendant at the Biological Conference, although, heavily ill, he

was unable to attend it. Nevertheless the President of BAS Acad. T. Pavlov forced him to send an address to the participants in the Conference recognizing the mistakes in his work and promising full reorientation to Lysenkoist positions. The original manuscript and the typed copy of the address (which are fully identical) are kept in the archives (Edreva, 2013a). The documents revealed the efforts of the scientist to explain his former and present positions in a civilized way. However, a completely different version was announced at the auditorium and later published in the Proceedings of the Conference (Anonymous, 1949). It proved to be a strongly falsified copy having nothing to do with the original one. Neither the content of the text, nor the style and language corresponded to Prof. Kostoff's writings. Moreover, it contained statements profoundly humiliating his personality: "Only on the basis of Michurin-Lysenko's stage in biology, founded on Marxism-Leninism, we will be able to purge the biological science from all remainders of the bourgeois reactionary science." "To be against the new, Soviet biology, that means to be against the USSR and the progress.", etc., etc... Despite some guesswork pointing to the highest BAS authorities, the exact authorship of the falsified official address remains unprovable. Noteworthy, no manuscript of this address is available in the archives.

Soon after the Conference (August 9, 1949) Prof. D. Kostoff, calling himself "a scapegoat", "a doomed man", died, struck by heart infarction. For long years his name was suppressed, his works denied, neglected, dispersed and forgotten while increasingly recognized abroad until now.

After the Biological Conference

The negative impact of the Conference can be a subject of a vast study beyond the scope of the present paper. Nevertheless, the adverse consequences could be briefly summarized as follows. The biological research in the institutes and universities was switched entirely on Lysenkoist basis. Investigations on mutations, hereditary diseases, polyploidy, inzucht lines, interspecific hybridization, statistics, were banned or fully neglected. Plant and animal breeding was put on a wrong basis and failed to yield productive cultivars and races this resulting in basic problems of food supply. The textbooks on genetics were destroyed and replaced by new ones imposing Lysenko's concepts; teaching of genetics was completely distorted which was particularly harmful for future physicians, agronomists and zootechnicians. Generations have grown with deformed genetical background this determining the futility of their research or practical work. Thus, in the period 1949 – 1964 only one plant cultivar (rye C-2) was developed by using Lysenkoist methods. In husbandry the application of wrong Lysenkoist approaches (yarovization of wheat, summer planting of potato, intravarietal hybridization in seed production of self-pollinated plants, etc.) led to heavy economical losses (Spirova, 2010).

Moreover, imposing political labels instead of scientific criteria caused a heavy moral collapse in Lysenkoist times, the consequences lasting until nowadays. To be devoted to the Communist Party and to Lysenkoism was the main condition for taking leading positions in institutes and the University. The simplest and easiest way to advance in the scientific career

was to declare fidelity to Party politics and Lysenkoist teaching, demonstrate reorganization of the studies to Lysenkoist basis, blame labeled scientists such as Prof. M. Popoff and Prof. G. Gentcheff, and - last but not least - slander colleagues suspected of standing at wrong positions and against the USSR. Thus, people of low scientific and moral level were appointed as heads of departments and institutions, this reflecting quite negatively on education and research (Mintchev, 2004; Spirova, 2010).

Prof. G. Gentcheff (1906 – 1989) was the only fighter, alone against all, trying to defend his ideas although subjected to moral terror. He was continuously



Prof. Gentcho Gentcheff
(1906 – 1989)

accused of being hidden supporter of classical genetics, enemy of the USSR and Lysenkoism, teaching different bourgeois and revisionist theories, implanting wrong biological knowledge in students and ruining their ideology. His textbook on genetics (1947) was destroyed. He was allowed to deliver lectures on selection and seed production which were surveyed by Communist Party representatives and strongly criticized. His textbook on selection and seed production (1956) was also heavily criticized being qualified as an attempt to restore the idealistic positions in biology. Moreover, his research was hampered, particularly the work on heterosis in maize and polyploidy in beet. The domination of Lysenkoism in the Faculty of Agronomy after the Biological Conference was personalized by Associate Professor Rayna Georgieva (1902 – 1983). Soon after the Conference she became Professor and Member of BAS. Being a former collaborator of Prof. D. Kostoff she stood entirely on Mendelist positions but later she abruptly turned to Lysenkoism starting works on vegetative hybridization, and became one of the leading adherents of Lysenkoism in the Faculty of Agronomy and the whole country. As a head of the Department of Darwinism, Genetics and Selection she contributed to the development of an atmosphere of complete intolerance there (Spirova, 2010).

The rehabilitation of genetics in Bulgaria. The discussions at the Lecture course in the Higher Agrarian Institute, Sofia (April, 1965).

As every dictatorship – particularly in the field of science – the Lysenkoism did not withstand the challenges of

the time. The development of modern genetics culminating in revealing of the structure of DNA, as well as the huge amount of experimental evidence questioning and refuting the results from the introduction of Lysenkoist approaches, incited the official disclaiming of Lysenko's teaching in the USSR in the period 1961 – 1964. All these events echoed vividly in Bulgaria. In January 1965 by the initiative of the Bulgarian Communist Party the editorial board of the daily newspaper "Zemedelsko zname" organized a meeting of leading agrarian scientists, supporters of the classical genetics – the academicians A. Popoff and K. Pavlov, and Prof. G. Gentcheff. The subject was to discuss the damaging effect of the application of Lysenkoist methods in science and husbandry, and the great economical losses of rejecting modern methods such as heterosis and polyploidy. The adverse consequence of teaching genetics on Lysenkoist basis was also a subject of discussion (Spirova 2010). Soon after this, in April 1965, the Lecture course at the Higher Agrarian Institute in Sofia (inheritor of the Faculty of Agronomy) organized a series of meetings devoted to the contemporary problems of biology. The opening session involved two lectures: "The achievements of cytogenetics and some philosophical problems in the teaching of material basis of heredity" by Prof. G. Gentcheff, and "On some debatable problems of genetics" by Acad. R. Georgieva. Thus, the two opposite views on genetics were presented. At the next meeting supporters of Lysenko (Prof. I. Vazvazov and Assoc. Prof. G. Girginov) and of modern genetics

(Acad. K. Pavlov and Assoc. Prof. G. Vekilov) openly expressed their views and ideas. Acad. Ch. Daskaloff's speech reflected his turning from Lysenkoism to modern genetics (Spirova 2010). Several meetings followed each other, being an arena of dramatic collisions of scientists with opposite convictions. Thus, the Lecture course played an important role contributing to the breakthrough in Lysenkoist dictatorship in Bulgarian science.

Conclusion

Endless and countless are the negative material and moral consequences of the forcible imposing of Lysenkoism in the totalitarian ex-communist countries. In present times, the rough interference of politics into science seems fully absurd while the large application of not well-proved approaches in the agrarian practice is out of common sense. Moreover, although born by the communist ideology and imposed by the communist regime in the ex-USSR, Lysenkoism as a phenomenon cannot be limited to communist societies. As a style of thinking and behavior it can always appear in any scientific community manifesting its strongly negative characters: falsification of experimental results, reaching to absurd pseudo-scientific claims, aggressiveness and absence of tolerance in discussions, and – particularly in dictatorial regimes – employment of political tools to impose views, even erroneous, and crush opponents. Thus in present times, discussing Lysenkoism aiming at understanding its roots, causes and character seems fully justified while believing in the absurdity of its revival.

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