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LYSENKOISM IN BULGARIA: LESSONS FROM 1949

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Received: 27 June 2018 Accepted: 03 August 2018

Summary: Trofim D. Lysenko developed his pseudo-scientific biological concepts influenced mainly by the Marxist-Leninist-Stalinist ideology and not by scientific facts. Lysenko and his supporters, backed strongly by the apparatus of the Communist party, succeeded to inflict a final blow to the followers of the "capitalist and reactionary" genetic science in August 1948. The geopolitical changes after the Second World War placed Bulgaria in the Soviet sphere of influence. In 1949 Lysenkoism was forced onto Bulgarian science and education with disastrous consequences. The principal lessons from Bulgarian experience is that science should not be influenced by ideology, popular beliefs or politics.

Keywords: Lysenkoism; Bulgaria; Biological Conference in April 1949; neo-Lysenkoism.

Citation: Karagyozov L., E. D. Ananiev, 2018. Lysenkoism in Bulgaria: Lessons from 1949. *Genetics and Plant Physiology*, 8(1–2): 94–102.

For almost thirty years a prolonged and sustained campaign was carried out in the Soviet Union, designed to impose the views of Trofim D. Lysenko (1898 – 1976) on the biology and agricultural scientists of the country.

Lysenkoism

The views of Lysenko and the efforts to enforce them are known as Lysenkoism. It should be noted that in Russian and in Bulgarian often a distinction is made between "lysenkovizm" – the views of Lysenko, and "lysenkovshtina" – the open and crude bureaucratic imposition of his unscientific views on genetics and agriculture.

Lysenko's views were publicly backed up by the leaders of the country

and the Communist party: Joseph Stalin (1878-1953), and later by Nikita Khrushchev. The ousting of Khrushchev in 1964 marked the end of the open propaganda of Lysenkoism.

The views of Lysenko were bizarre and pseudoscientific. However, they were in agreement with the existent interpretation of the philosophy of Marx and Lenin. Because of this for Lysenko it was fairly easy to win the support of the authorities. In spite of the attitude of the Party, the teachings of Lysenko faced strong criticism, notably by the worldfamous geneticist and botanist Nikolai Vavilov (1887 – 1943). A detailed account of events related to Lysenkoism in the USSR are found in the book of Valery Soyfer (1993, 1994).

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Lysenko's views and their implementation

The principal concepts of Lysenko may be summarized as follows. He believed that features acquired during the lifetime of an organism are inherited (neo-Lamarckism); he rejected the very idea of "genes" as discrete units of inheritance and their localization in chromosomes; he rejected the laws of Mendel; he disagreed with Darwin on such important topics as the survival of the fittest and natural selection. Lysenko pronounced himself a follower of Michurin (1855 - 1935). Michurin himself was a practitioner, renowned for his work on selection of fruit trees; Michurin's work is unrelated to Lysenkoism. Later on, Lysenko proclaimed his teachings to be "creative Darwinism"

Lvsenko's statements, widely publicized in journals and newspapers, were declared unquestionably true and utterly progressive, an example to be followed by all. Moreover, Soviet science was proclaimed to be socialist, materialistic, different and superior to the capitalist Western science, which upon reactionary, relied idealistic ideas. Based on the ideology of Marx, Lenin and Stalin, Soviet biology and agricultural sciences were expected to produce immediate and spectacular results. More grain, more milk and meat were supposed to be just around the corner. None of that materialized.

One notable aspect of the vicious campaign against the "traditional" scientists was that thousands of them were fired and lost their jobs. Many of them were forced to change the field of their research. Others were sentenced and imprisoned as reactionary elements, some never came out alive (as happened to Nikolai Vavilov). In the universities and the agricultural centers the vacant positions were promptly occupied by ardent supporters of the "progressive" ideas of Lysenko and Michurin.

The August 1948 Session of VASKhNIL

The stronghold of Lysenko and his backers, such as I. I. Prezent, his principal ideologist, was VASKhNIL, the Lenin All-Union Academy of Agricultural Sciences (in Russian: Vsesoyuznaia Akademia Selskohozyastvenih Nauk imeni Lenina). The decisive victory over the reactionary scientists, still remaining in the Soviet Union, took place at the "August session of VASKhNIL" (July 31 – August 7, 1948). This session was organized under the direct control of the Communist party; Joseph Stalin personally corrected the draft of Lysenko's opening statement.

At the 1948 VASKhNIL Session the supporters of Mendelian genetics confessed their mistakes. Decisions were taken to root out research and teaching of classical genetics. Normal work in the related fields of evolution, developmental biology, microbiology and virology could not be carried out too. The circulation of some other outlandish theories, such as that of Acad. O. B. Lepeshinskaya or that of G. M. Bashian, also contributed to this (see also Edreva, 2015).

Changes in biological sciences in the 1940s and 1950s

It is of interest to mark the trends in the investigation of heredity and in agricultural sciences during the period of Lysenkoism. The discovery of Avery, MacLeod and McCarty, published in 1944, showing that DNA carried hereditary information was not even mentioned at the VASKhNIL session. It is hard to imagine what the loyal Lysenkoists thought of "the double helix" of Watson and Crick (1953).

More importantly, at that same period Norman Borlaug was feverishly working in his research station in Mexico, developing wheat varieties, which became the basis for the Green revolution. N. Borlaug received a Nobel price; the Green revolution bypassed the Soviet Union and the Eastern Bloc.

Division of Europe

After the Second Word War (1939 – 1945) geopolitical changes took place in Europe. Prior to that, the ideological discussions in the Soviet Union had a minor influence on Bulgarian science. However, history placed Bulgaria, and some other European countries, under Soviet domination. In 1946, one year after the war, Winston Churchill noted with anguish that "an iron curtain" has descended across Europe. Behind it, from Warsaw to Sofia, the countries were subjected and put under increasing control from Moscow (Crampton, 2005).

The Fifth Congress of the Bulgarian Worker's Party (communists)

A major development in the Bulgarian political life was the Fifth Congress of the Communist party, which was held in December 1948. Discussions on the importance the historic Fifth Congress are beyond the scope of this article.

It was significant, however, that the Bulgarian Congress was held after the 1948 August Session of VAShNIL. Because of that, the declarations and decisions of the Congress were entirely in accordance with Lysenkoism. The main speaker on the subject was Valko Chervenkov, a staunch Stalinist, head of the Committee for Science and Culture (in Bulgarian: Komitet za hauka i kultura, abbreviated KNIK).

Here is what Chervenkov said (Supplement 1, p. 37 – 38):

"Our biological science, and the related institutes, are obliged, in a short period of time, to decisively cleanse themselves from the morganistic and other reactionary views, to stand unreservedly on Michurin-Lysenko positions, and to start work with the greatest energy to implement... the Michurin-Lysenko science in Bulgaria.

We will not solve the task of reconstructing science, putting it entirely in the service of the people and its socialist cause, if we do not transform the old system of secondary and higher education in our country, the pedagogical institutes, the Academy of Sciences and the research institutes. "

These words spelled hard times for education, for Mendelian genetics, selection practices and agronomy in Bulgaria.

The 1949 Biological Conference. Preparation

A climate of suspicion of anything that may be "bourgeois", "reactionary" or "Anglo-American" was prevailing. The VAShNIL session and the decisions of the Fifth Congress guided the authorities. A replica of the Soviet witchhunt of 1948 was promptly staged. The preparations took just few weeks. The important institutional figures were high ranking members of the Communist apparatus. One of them was Todor Pavlov, President of the Bulgarian Academy of Sciences, a philosopher. The other one was Titko Chernokolev, deputy minister of Agriculture, advocate of fast and complete collectivization in Soviet style.

The 1949 Biological Conference. Proceedings

The Conference about "The Situation of the Biological Science ..." took place in Sofia, 4th to 8th of April 1949 (Fig. 1). More than five hundred participants academicians, professors, agronomists, researchers and practical workers - took part. An important event happened a few days just before the Conference. On the 27th of March 1949 Traicho Kostov, a leading Bulgarian Communist, was accused of political mistakes and anti-Soviet leanings (by the end of the year he was hanged as an Anglo-American The message was clear: no agent). one is protected. All scientists at the Conference confessed mistakes and gave promises strictly to follow the teachings of Lysenko and Michurin.

A remarkable feature of the Conference of April 1949 was that all participants with biological education had been followers of classical genetics. That includes the main speaker at the Conference Prof. Christo Daskalov.

Some participants were not very cautious and admitted frankly (Supplement 1, p. 130):

"Undoubtedly, the Weismannism-Morganism, which dominated biology in the capitalist countries, became a commonplace theory also in our research institutes; this influenced their research and practical work. Otherwise it could not be, as our first scientists and specialists have received education and special training in universities and research institutes in Western Europe and America, where this doctrine flourished and developed most. Moreover, our University has even won world renown with its geneticists and biologist-morganists".

Moreover, the Bulgarian biologists of 1949 were already very much aware about the role of DNA in heredity. However, describing and interpreting the Avery experiments, they followed the Party line. The speaker (E. Ianev) was scornful (Supplement 1, p. 294):

"In other words, the genes in the form of deoxyribonucleic acid are already kept locked in a glass. The "doings" went thus far!"

In spite of their background and knowledge as specialists, speaker after speaker declared their devotion to the teaching of Michurin-Lysenko, praised the fabulous achievements of the Soviet science and agriculture and promised to fight the reactionary, idealistic concepts of Mendel-Weismann and Morgan to the very end.

One disturbing feature in the Conference was that some speakers (e.g. D. Boykov, Supplement p. 412 - 423) accused others of not being sincere enough in their self-incrimination or in smearing genetics.

The fate of the leading Bulgarian geneticists

Dontcho Kostoff (1897 – 1949) was (and still is) the most prominent



Figure 1. Title page of the Proceedings of the April Biological Conference (1949).

Bulgarian geneticist. His principal papers were published in renowned international journals and were cited many times by leading experts. He had leftist ideas and illusions and went to the Soviet Union to work with Nikolai Vavilov for several years (1932 – 1939). Vavilov for several arch-rival of Trofim Lysenko. However, Vavilov fell out of favor, and Kostoff returned to Bulgaria. He never accepted Lysenkoism. At the time of the April Conference in 1949 Kostoff was already gravely ill. He wrote a letter to the Conference, the organizers did not like it and published a falsified version. Dontcho Kostoff died of a heart attack on the 9th of August 1949, age 52 (Azmanov, 1984. 1988; Edreva, 2013, 2015; Tsikov, 1997).



Figure 2. Title page of the "Genetics" by Michail Christoff (1936).

Michail Christoff (1896 – 1960) wrote the first textbook in Bulgaria in Genetics (Fig. 2). He answered most briefly and to the point to the criticism at the Conference (Supplement 1, pp. 151 - 155). He "hoped to be able to master the dialectical materialism"; he promised to correct the "mistakes" in his textbook in Botany. After 1949 Prof. Christoff terminated his work in genetics and destroyed his seed collection (G. Georgiev, 1991; Rukmanski, 2011).

Gentcho Gentchev (1906 – 1989) was severely criticized at the April Conference. Later on he attempted to find philosophical arguments in support of Mendelism (Edreva, 2015; Spirova, 2016; Rukmanski, 2011).

Lysenkoism in other countries

Lysenkoism was also introduced in the other countries of Eastern Europe and in China. However, its acceptance was not uniform. In Poland, and in Czechoslovakia only single scientist opposed openly the "Michurin biology", while all others followed the Party line (Gajewski. 1990; Orel, 1992; deJong-Lambert, 2012). In the German Democratic Republic opposition to the "creative Darwinism" was strong. The impact on science was minimal, partly due to the open border between the two parts of Berlin, and the cooperation between the scientific institutions Nevertheless Lysenkoism was present as text in schoolbooks (Hagemann, 2002). In China Lysenkoism was prevailing. However. during the short-lived campaign "Let hundred flowers blossom, let hundred schools of thought compete" in a genetics symposium (held in August 1956), arguments in favor of Mendel and Morgan were allowed (Li, 1987).

Consequences and repercussions

In 1949 the mass media was presenting the April Conference as a scientific triumph. The public was enthusiastic and expected great results in agronomy and in science. Liberated from the reactionary bourgeois ideology, guided by the progressive Soviet example, great achievements were around the corner (as remembered by G. Georgiev, 1991).

The things which happened, however, were quite different.

In accordance with the Resolutions of the April Conference (Supplement 1, p. 458) all school and University textbooks were replaced with new ones, in which no scientific knowledge about genetics, cytogenetics, evolutionary genetics or developmental biology was given. That destroyed for long time the basis for meaningful selection work in agriculture, research in human genetics and diagnostics of hereditary diseases (Edreva, 2015).

All research and pedagogical staff was educated in the ideas of Michurin-Lysenko, making use also of long-term training of young loyal specialists in the Soviet Union. This compromised the entire educational system for long years, hence the low biological literacy in Bulgaria to this day.

Another important aspect of the 1949 reforms was the decline in scientific ethics. Papers reported experiments which were not properly performed but suited progressive ideas (or simply the ideas of the higher authorities). Moral principles are hard to cultivate in a climate of political or bureaucratic pressure on science.

The return to normalcy

The first systemic criticism of Lysenkoism in Bulgaria appeared in 1966 when Prof. Gencho Gentchev published his "Contemporary problems..." As to our knowledge, no further detailed criticism of the teachings of Lysenko appeared in Bulgarian. The development of science destroyed the very foundation of the principal Lysenko ideas.

An important event in that respect was the publication by Prof. Asen A. Hadjiolov (1972) of a short textbook on molecular genetics. This book, first on the subject, was written in accordance with the high standards of educational texts, set by M. Christoff (1936).

Attempts to rehabilitate Lysenkoism in Russia

The Lysenkoist propaganda stopped in the mid-1960s. Since that time it was believed that Lysenko, with his obsolete neo-Lamarkism and refusal to accept the existence of genes, has been forgotten for good. However, recently in some nonepeer-reviewed publications and in blogs a new tune is heard: Lysenko was a great agronomist; he did a lot for his country; the ill-wishers of Russia were plotting to undermine his visions, etc.

It should be pointed out that the unscientific ideas of Lysenko were not based on facts or proper experiments but rather on the doctrines of Marx-Lenin-Stalin. In essence, Lysenkoism is an ideological phenomenon, a theoretical construction.

Similarly, the present day neo-Lysenkoism in Russia is not a result of scientific discoveries or discussions; it is a sociological event. Neo-Lysenkoism may not be explained by a single factor or attributed to some unheard discoveries in biology. According to Kolchinsky et al., (2017) several causes contribute to neo-Lysenkoism. These include: the general decline in scientific literacy in Russia; the rise of anti-science sentiments; the surge of popularity of Stalin; the notion of Russia's uniqueness among nations and its imperial strength.

Neo-Lysenkoism has been recently criticized in details in papers, e.g. Ermolaev, 2015, and in the electronic media (Lysenko: genius or villain, 2016).

Acknowledgements

The authors are obliged to Mr. Latchezar Toshev for generously providing the full text of the Proceedings of the 4 – 8 April 1949 Biological Conference in Sofia. One of the authors (L. K.) is grateful to Prof. A. V. Troitsky (MSU, Moscow, Russia) for attracting his attention to the instances of neo-Lysenkoism.

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