

## Вавилов — советский дарвинист в Мексике

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Николай Иванович Вавилов приезжал в Мексику в 1930 и 1932 гг. В 1925 г. его команда посетила Мексику заранее, вступила в контакт с Альфонсо Л. Геррера и начала работать с Максимино Мартинесом, которого Дирекция биологических исследований назначила сопровождающим Советской научной комиссии. Исследовательская программа Вавилова о происхождении культурных растений мира продолжала проект Кандолле, который был пересмотрен Дарвином и пропагандировался в 1960-х и 1970-х гг. Джеком Р. Харланом и другими исследователями. Вавилов не смог довести свою программу до конца из-за препятствий, которые создавал Лысенко. Однако идеи Вавилова снова обрели популярность в Мексике. В настоящее время вавиловские концепции занимают важное место в дискуссиях о национальной пищевой политике и биокультурном наследии, которым является традиционная кукуруза и другие растительные ресурсы Южной/Центральной Мексики и Центральной Америки. Этот регион, также известный как Мезоамериканский гипоцентр подвергся опасности из-за экологической и пищевой угрозы, которую несет с собой внедрение генномодифицированной кукурузы.

**Ключевые слова:** Вавилов, Мексика, Мартинес, гипоцентр, культурные растения, генетика, этноботаника.

## Stalin and Fighters Against Cellular Theory

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An illustrative example of the intervention of the Soviet totalitarian regime in science is the promotion of an old Bolshevik, Olga Lepeshinskaya, who declared that she proved the creation of new cells from non-cellular 'Living' matter and insisted that the well-established Cell Theory should be rejected as erroneous. Although many leading biologists criticized her statements, Stalin personally supported her views and people like T. Lysenko enthusiastically agreed with these failures. At the special session of two Soviet Academies — the USSR Academy of Sciences and the USSR Academy of Medical Sciences — Lepeshinskaya's claims were supported by 27 Soviet biologists who condemned the "bourgeois" science and many frauds presented fabricated 'evidence' in support of the "new Cell Theory". In 1950, by the special decree of the Soviet Government the Stalin Prize was given to Lepeshinskaya for her "discovery of Live Matter". The different governmental agencies ordered to forbid all research in the field of Cell Theory in the USSR. As a result, Russian science, that was at the forefront of world science in many fields, lost its reputation and is still suffering.

**Key words:** Soviet regime, cell theory, "live matter", Stalin Prize, Olga Lepeshinskaya, J. Stalin, T. Lysenko, G. Boshyan.

## Iosif Stalin Personally Supports Trofim Lysenko in His Struggle Against Geneticists

In 1935, Lysenko twice gave presentations in the Kremlin in front of Stalin during meetings of the Soviet Government with collective farm peasants, and from the first meeting Lysenko played his role perfectly. He addressed to Stalin exactly such words that the latter wanted to hear:

"Comrades, saboteurs and kulaks are to be found not only in your collective farm life. You know them very well in the collective farms. But they are no less harmful and no less a curse for science. Much blood has been spilt in various debates with these so-called "scientists" over the question of vernalization.

The situation was such... that instead of helping the collective farms, they engaged in wrecking. In both the scientific world and the world outside science, a class enemy is always an enemy, whether he is a scientist or not.

So, comrades, this is how we have dealt with things. The collective farm system has dealt with this. On the basis of a unique scientific methodology, and a unique scientific leadership, about which Comrade Stalin teaches us on a daily basis, this has been dealt with..." (Lysenko, 1935a)<sup>1</sup>.

Stalin, filled with enthusiasm by the flowery speech of this "vernalizer," jumped up at the conclusion of Lysenko's speech and shouted to the hall: "Bravo, comrade Lysenko, bravo!" This outcry was published in all of the Soviet newspapers as a public declaration of Lysenko as the victor in scientific discussions.

But at the end of the 2<sup>nd</sup> World War Lysenko found himself under the strict criticism of many scientists and even some Soviet leaders. At this moment Stalin decided to support him.

<sup>1</sup> See also the brochure: Lysenko et al., 1935. P. 14–15.

In response to Lysenko's lamentations that critics were killing his efforts in building up the new Soviet biology, Stalin sent him a long letter encouraging Lysenko to work further as the leader of Soviet biology and mentioned specifically that Lysenko's declaration regarding erroneous nature of genetics was correct:

"TO ACADEMICIAN T.D. LYSENKO

Dear Trofim Denisovich!

I received your letter of 27 October, 1947. Many thanks for this letter...

What concerns the theoretical concepts in biology, I think that the Michurinist concepts are the only scientific ones. The Weissmanists and their followers who deny the inheritance of acquired characteristics do not deserve to have many words wasted on them. The future belongs to Michurin.

With respect,  
I. Stalin  
31/10/47"<sup>2</sup>.

Stalin wrote this letter when he was on vacation in Caucasus at the Black Sea. When he returned to Moscow, he sent a letter to the members of the Politburo of Communist Party informing them about Lysenko's note.

"№ 1144

25 November, 1947

**To members and candidate members of the Politburo of the Central Committee of the All-Union Communist Party (bolsheviks)**

*To Comrades Andreyev, Beria, Voznesensky, Voroshilov, Zhdanov, Kaganovich, Malenkov, Mikoyan, Molotov, Stalin, Khrushchev, Bulganin, Kosygin, and Shvernik.*

*To the Secretaries of the CC of the ACP(b), Comrades Kuznetsov, Popov, and Suslov, and to Comrades Benediktov, Skvortsov, and Tsitsin.*

The letter by Academician Lysenko of 10.27.47 is being distributed to members and candidate members of the Politburo for their familiarization, because it raises issues that are timely and of exceptional importance. At the appropriate time the issues raised in this letter will be discussed in the Politburo.

I. Stalin"<sup>3</sup>.

In August 1948, the session of the Lenin All-Union Academy of Agricultural Sciences (VASHNIL) was held. The decision that the science of genetics was now completely forbidden in the USSR by Communists was publicized at this meeting. A month later, in September 1948, the session of another Soviet Academy, the USSR Academy of Medical Sciences was carried out. The crushing of biology that happened at the August 1948 session of VASKhNIL was repeated. Now the purging of the agricultural, biological, medical and biomedical scientific research and educational institutions took place.

## Lysenko's Claim That Biological Species Can Be Transformed into Other Species

Lysenko termed Darwinian theory of the evolution of species as "flat evolution," and announced that he and his followers would fix the mistakes of Darwinism:

"As a result of the development of our Soviet agro-biological science of a Michurinist orientation, a number of issues of Darwinism can be seen in a different light. Due to that, Darwinism is not only cleansed of mistakes, and is not only raised to a higher level, but to a significant degree it is changed in many of its assumptions" (On the Situation in Biological Science, 1948, p. 38).

Lysenko's followers declared that they fully confirmed his "discovery" of transformation of species. In 1941, M.G. Tumanyan published an article in journal *Yarvisatsia* (Tumanyan, 1941, p. 13–18) about the transformation of hard wheat into soft wheat in Armenia. In 1944, V.K. Karapetyan who worked under the direct supervision of Lysenko at the Gorki Leninskiye Experimental Station in a suburb of Moscow observed similar transformations, his article has been published in *Agrobiologia* where Lysenko was an Editor-in-Chief (Karapetyan, 1948, p. 5–21). In 1949, M.G. Tumanyan reported that he had found a mixture of rye plants in wheat crops, and wild oats in rye crops! Not discouraged, V.K. Karapetyan, together with M.M. Yakubintzer and V.N. Gromashevsky, reported that they had found kernels of rye in wheat ears: they said that everything is clear now — kernels of a new species were born directly in the ears of an old species (Cited from the book by Lysenko, 1952, p. 669). A.A. Avakyan found the creation of *Triticum polonicum* wheat from the branched wheat, *Triticum turgidum*. N.D. Mukhin outdid his Armenian colleagues. He complimented their wheat transformation with one more discovery: from soft wheat he was able to achieve branched wheat (Mukhin, 1952). Then, L.V. Mikhailov got cabbage from rutabaga and rape. In the hands of the Lysenkoists barley turned into wheat, rye into barley, peas transformed into vetch, and vetch into lentils! K.Ya. Avotin-Pavlov added to the list of "birthings" by finding a spruce that supposedly gave birth to a pine tree (Avotin-Pavlov, 1951), while F.S. Pilipenko found that one species of eucalyptus gives rise to another species of eucalyptus. These reports were then expanded: "proof" was found for the creation of birch by alder, and of hornbeam by oak. One "craftsman" explained the appearance of the weeds specific for sunflowers by saying that the sunflowers had given birth to their own particular weed.

But the most "successful" of all was Lysenko himself. He soon reported at several conferences, assemblies and lectures that **warblers give birth to cuckoos!** Constantly mentioning Stalin's beloved "philosophic law" of the transfer of quantity to quality, the Lysenkoists explained that all of these new forms were the reflection of a single process: the arising of weed plants from agricultural plants and only sometimes of one type of agricultural plant, admittedly of a rung lower, from other agricultural plants, coming from the gradual accumulation of something unfavorable somewhere in its bowels.

To explain this fiasco in agricultural practice, Lysenko decided to shift the blame from himself to theoretical biology and foremost to Darwinism. He repeated many times in his presentations and articles that Soviet biologists must correct numerous mistakes in theoretical biology.

<sup>2</sup>Cited from journal: Herald of History of Natural Sciences and Technology. 1988. № 2. P. 157–165. See the letter of Stalin on p. 164–165.

<sup>3</sup>Ibid. P. 165.

## Why Transformation of Species Became Very Important for Lysenko?

Why did Lysenko need to speak about the “transformation of one species into another species”? Lysenko warned: incorrect agricultural techniques based on the canons of classical (bourgeois) genetics, not subordinated to the canons of Michurinist (Lysenkoist) biology, were leading to the degradation of Nature. His new idea had its origin, of course, not in the task of fruitfully developing Darwinism, but rather had a very practical goal. Although Lysenko himself never advertised it, several of his more zealous adepts harped on the idea that this new “theory” would help to explain the cause of the large-scale proliferation of weeds in agricultural crops.

The reason for urgency to reconsider the problem of weeds was that one of the consequences of the Lysenkoists’ dominance in agriculture was anarchy in seed processing. The scientific requirements for the reproducing of pure lines had been debunked. Instead Lysenko suggested that free cross-fertilization of crops led to improvement of seed material.

The basis for such a voluntarist approach was as follows:

“Darwin’s theory comes from the acknowledgement only of quantitative changes and only from the principle of increases or decreases, and does not take into consideration the necessity and regularity of transformations or transitions from one qualitative state to another. And at the same time, without transformation from one qualitative state of organic forms to another qualitative state there is no development and transformation of one species into another. There is only an increase or decrease in quantity. There is only the process that is usually called growth” (Lysenko T.D. Results of the Work of VASKhNIL and the Tasks of Agricultural Science. Report on the Anniversary Session of VASKhNIL, 1949. Cited in the book by Lysenko, 1952, p. 632).

This quotation is taken from an article by Lysenko published in 1949. In that same year, for the seventieth birthday of Stalin, he published the article “I.V. Stalin and Michurinist biology.” But although he formulated the new “Law of Biological Species,” according to which one species can simply turn into a different species without any intermediate stages, he was unable to provide real explanation for the process of transformation of species. Speculating on the beloved Stalin’s definition of the philosophical law of the transition of quantity to quality, Lysenko confidently declared that in nature there is supposedly continuously observed not gradual evolutionary development, but revolutionary jumps, in which one species turns into another. However, all biological data contradicted the very idea of such perturbation of cells. Moreover, several well-established rules, such as famous slogan of R. Virchow “Every cell from cell” became axiomatic and vetoed ideas similar to Lysenko’s innovations.

And suddenly one of the oldest members of the Communist party, Olga Borisovna Lepeshinskaya, declared that she discovered that in Nature exists specific “Living matter” that was not observed by biologists before her, and that she obtained evidences of transformation of this “Living matter” into normal live cells. Lysenko immediately understood that due to this discovery all obstacles in the way of acceptance of his “Law of Biological Species” could be avoided. If Lepeshinskaya is arguing that besides the cell, there is another kind of particular, non-cellular matter that is “as if alive,” then from this matter, as if in a fairytale, a living cell can emerge. So, perhaps, a species turns into another species through a stage of living matter?

As soon as Lysenko realized the enormous practical value for himself that came from Lepeshinskaya’s idea, he supported the new revolutionary of Soviet science.

## Olga Lepeshinskaya Starts Her Struggle Against Cell Biology

### a) Lepeshinskaya’s Claim that Animal/Human Cells Carry Thick Membranes and Rejection of This Claim by Leading Biologists

In the end of the 1930s, Lepeshinskaya began to publicize her idea regarding existence of complex membranes of animal and human cells playing a substantial role in the cells’ life. Scientists by this time had studied phospho-lipid membranes of animal cells and rejected the very idea that these cells have a special “coat”, much more rigid and complex than thin, relatively simple in their morphological structure cellular membranes. However Lepeshinskaya rejected these conclusions without any reliable and sophisticated experiments. Instead, she used very primitive methods of staining cellular preparations with simple stains.

“Analyzing this process of staining, I came to the conclusion that the purple color of erythrocytes takes place after staining because there is a mix of two colors – blue and red, which together should give a purple color. The fact that erythrocytes become red after tannin I attributed to the fact that tannin, obviously, removes something that was dark blue colored, and this could only be something lying on the surface, i.e. membranes. Tannin, obviously, ripped them away and freed the body of the erythrocyte which is colored red with eosin, and the narrow light-blue border... was nothing other than the remains of the [thick] membrane of the erythrocyte... On the next day I started my experiments, and straight away came upon a partial rupture of the membranes with an outflow of protoplasm, that is, a full confirmation of my suppositions (table 1, diagram 1)”<sup>4</sup>.

One reads such things and cannot but be amazed at how easy it is to become a scientist! In one blink of the eye the unproven supposition, presented in an arrogant tone, is declared to be the only possible scientific truth, and facts worked out by scientists are thrown out, without any basis at all, as mistaken.

But where is the proof? Even by the end of the 19th century it was known that tannin does not tear anything away<sup>5</sup>, but rather the opposite: it has a strengthening effect, hence the name (from the French *tanner*, to tan leather), and that tannin is a “mix of phenol compounds possessing the ability to form durable crosslinks with proteins and several other natural polymers (cellulose and pectin substances).” However Lepeshinskaya prepared a book describing her views. In short period of time, these views were strongly criticized by leading scientists and, first of all, by Nikolay Koltsov.

However, Lysenko supported her announcement regarding the existence of coats in animal cells. He suggested her candidacy for awarding with the Stalin Prize in science. Once discussion of her candidacy to receive this highest Soviet scientific award for her book began, there was a

<sup>4</sup>Lepeshinskaya O.B. Membranes of Animal Cells and their Biological Significance (Obolochki zhivotnykh kletok i ikh biologicheskoye znachenie), Moscow, State Publishing House for Medical Literature, 1946 (1947). I have given two dates — 1946 and 1947 — not because I am citing the date only approximately or from memory. This book, printed on good paper and with an appendix entitled “Atlas to the Book of O.B. Lepeshinskaya,” is lying in front of me. But it is impossible to discern the precise date of its publishing: on the cover it is printed “1946,” while on the title page a different date is indicated: 1947. From this printing information it becomes clear that the book was most likely published in 1947, but the author apparently wanted to “stake” her priority a year earlier. This is one more reflection of the style of the Lepeshinskayas, Lysenkos, and people of their ilk. The quotation is on p. 12–13.

<sup>5</sup>Short Encyclopedic Dictionary (Maly entsiklopedicheskii slovar). St. Petersburg, Brokhouz-Efron, 1902. Vol. 3. P. 1443.

flood of argumentative objections from many specialists. The Committee voted against giving Lepeshinskaya the award. Only one member of the Stalin Prizes Committee was in favor of awarding her. This was T.D. Lysenko.

#### b) Iosif Stalin supports Lepeshinskaya's claims

In the middle of the 2<sup>nd</sup> World War Olga Lepeshinskaya was successful in another area. She was able somehow to “push” her manuscripts onto Stalin. The Kremlin leader looked them over and interfered in the arguments of scientists, as he had already done on more than one occasion.

Using the rumors that the Great Stalin supported her views, in 1945, Lepeshinskaya was able to publish a new book: “The Origin of Cells from Living Matter and the Role of Living Matter” (Lepeshinskaya, 1945). Lysenko agreed to write the forward (his text was jointly prepared by Lepeshinskaya and I.Ye. Glushchenko). She wrote:

“The attention of Comrade Stalin... filled me with inexhaustible energy and fearlessness in my struggle with idealists of all stripes, and with all of the difficulties and obstacles that they have put in the path of my scientific work” (Lepeshinskaya, 1952, p. 3)<sup>6</sup>.

Lysenko in his Preface to the book admitted:

“Olga Borisovna Lepeshinskaya's has made an enormous contribution to the theoretical bases of our Soviet biology during many years of her successful experimental work... And one can be sure that the scientific and practical significance of O.B. Lepeshinskaya's work will only grow with the years” (see: Lepeshinskaya, 1945, Forward by Lysenko, p. 5).

However, a group of the most respected specialists in the field of cell theory, centered around the leading scientific colleagues of the Leningrad academic institutes and Leningrad University, was able to get an appeal to scientists published in the All-Union newspaper *Meditsinskii Rabotnik* on July 7, 1948<sup>7</sup>. Among those who signed the letter were the Academician N. Khlopin, Corresponding Members of the USSR Academy of Sciences and Academy of Medical Sciences V. Dogel', D. Nasonov, and P. Svetlov, Professor V. Aleksandrov and others. The review of Lepeshinskaya's book was concluded with this devastating remark:

“... the author completely lacks familiarity with biology in general and with the details of the objects of her study in particular... Presenting entirely evasive, and therefore reactionary, from a scientific point of view, conclusions as innovative and revolutionary ones, Lepeshinskaya misleads

<sup>6</sup>This phrase was repeated in many other publications by Lepeshinskaya, see, for example her brochure: Path to Revolution, Reminiscences of old Bolshevik woman (Put' v revolutsiyu. Vospominaniya staroi bol'shevichki). Perm': Permskoye Knizhnoe Izdatelstvo, 1963. P. 3.

<sup>7</sup>On One Unscientific Conception, letter to the editor of the Newspaper / P. Makarov and others // Medical Worker (Meditsinskii Rabotnik). 1948. July 7. P. 3. The text of the letter was prepared by A.G. Knorre, with help from V.P. Mikhailov. (Altogether there were thirteen signatures of leading Soviet scientists, including Academician V. Khlopin, Corresponding Members of the USSR Academy of Sciences V. Dogel and D. Nasonov, Corresponding Member of the USSR Academy of Medical Sciences P. Svetlov, Professor V. Aleksandrov, Sh. Galustyan, V. Katsnelson, Yu. Polyansky, Associate Professor A. Knorre and others).

the layman reader and disorients the young researchers... Lepeshinskaya's unscientific book is an annoying stain on scientific biological literature”<sup>8</sup>.

#### c) The Communist Party Orders that Scientists Must Reject the Cellular Theory and Agree With Lepeshinskaya's Claims on the Resurrection of Living Cells from Non-Cellular Matter

The sharp criticism of leading scientists did not discourage Olga Borisovna. She did not begin to repeat her experiments in order to try to convince colleagues with new and more solid data or to search for new arguments and evidence in her defense. Instead, she became angry and visited many times the apparatchicks at the headquarters of the Central Committee of the Communist Party, and began to seek out any politically motivated loophole to put pressure on those who disagreed with her. She decided that, using political accusations, hanging political labels on the scientists opposed to her, and simultaneously insisting on her unwavering loyalty to Marxist-Leninism, to the Party of the Bolsheviks and to the Great Stalin, she would get her way. She, for example repeated many times in her presentations and publications the following phrase:

“...such a formulation of the question is possible only in the Soviet Union. Nowhere in the capitalist world could such attempts, in principle, be carried out. They are simply the result of the specific ideological directedness and of specific approaches to the very problem of life” (Stenographic Report... 1950, p. 7–8).

The All-Union Conference on Living Matter and the Origin of Cells was carried out under the strict control of the Central Committee of the Communist Party in 1950. Lepeshinskaya began her presentation with very ideological thesis:

“Bolshevik party spirit in science demands a militant attitude toward the study of scientific problems and demands to keep the struggle against idealism and metaphysics in science...” (Lepeshinskaya, 1950, p. 10).

Professor A.D. Speransky (1887–1960), a laureate of the Stalin Prize, much decorated, a Full Member of the USSR Academy of Sciences and the USSR Academy of Medical Sciences, a member of the Communist Party since 1943, and famous specialist in pathology and pathophysiology, whitewashed the long running and ugly conflict between Lepeshinskaya and scientists, and greeted her with the following phrases:

“One can say straight out that O.B. Lepeshinskaya for a long time bore the cross of vilification. She never lost her optimism, however... Only an Old Bolshevik, which Lepeshinskaya is, would have to overcome these derisions and obtain such proofs that can convince others. Personally, for me it would have been sad if, due to insufficiencies of methodology, the work of O.B. Lepeshinskaya, and through that all our Soviet science, would be discredited, and if our science will be subjected to ridicules from those people who are always ready to throw around such malicious insults” (Stenographic Report... 1950, p. 125–126).

Twenty seven speakers at this meeting publicly agreed with Lepeshinskaya's views and declared that in the future they would base their research entirely on her understanding of laws

<sup>8</sup>On One Unscientific Conception, letter to the editor of the Newspaper / P. Makarov and others. P. 3.

of cell biology. Among them were scientists with stable reputation in their fields and several people, previously unknown in biological circles. Nevertheless, these unknown people presented ambitious reports in which they informed listeners with absolutely fantastic fabrications. However, none of more than 100 attendants of this session argued with absurd statements and all of them even applauded every speaker.

M.M. Nevyadomsky, for example, alleged that lymphocyte-like cells had formed from the sarcoma virus. Foreseeing possible objections, he parried them ahead of time:

“My data presents nothing unexpected. Why? By means of an electron microscopy with magnification of 28–50 thousand times, it makes clearly visible that when increased, a virus becomes in very much extent to resemble a swollen cell” (ibid, p. 163).

Another sorcerer, K.A. Lavrov, told that he was able to clearly distinguished new cells that were formed inside of older cells. “Here is a lip tumor,” he said. “Inside of a cancer cell there is an another cell” (ibid, p. 120).

N.M. Sisakyan who declared that he had found biochemical evidences of the origin of cells from “living matter”, studied the biochemistry of this “matter” and declared straight out: “The task of the artificial creation of molecules of proteins... is alien to scientists from capitalist countries due to their ideological orientation” (ibid, p. 124–125).

After the Conference, the Chairman of the State Committee for Science and Technology, as well as the Ministers Public Health, Agriculture, Higher Education and Public Education issued decrees stating that all Institutes and laboratories in the USSR that carried cytological research must be re-oriented and stop any further work in classical cell biology. Only Lepeshinskaya’s views were permitted in the country. As a result of these draconian policies, a vast number of laboratories and institutes stopped productive work, and thousands of researchers were required to admit publicly that they had promulgated wrong, idealistic, reactionary or bourgeois beliefs and that from this moment they are acceding completely their loyalty to Communist views.

The final resolution of the Conference was repeated in the orders of all the Ministers and contained the following phrases:

“By acknowledgement of the Conference of the Academy of Sciences, and through the work of the Cytological Laboratory of the USSR Academy of Medical Sciences, for the first time the idealistic concepts of Virchow in this sphere have been completely unmasked and, in spite of all difficulties and obstacles, the idealistic proposals of Virchow and his successors have been boldly discarded, which creates the possibility for the advancement of science” (Lepeshinskaya, 1952, p. 5).

In the same year, Stalin publicly expressed his special tribute toward Lepeshinskaya. He signed the decree of the Soviet Government awarding her with the Stalin Prize of the 1<sup>st</sup> degree for her discoveries. Every year these highest state awards were given to several dozen leading scientists of different disciplines on Stalin’s birthday, and they never were presented to just one scientist. On this occasion, the prize was issued to only Olga Borisovna Lepeshinskaya. It was, in fact, an absolutely exceptional award!

## The Widening Number of Charlatans Who Followed Lepeshinskaya

In the spring of 1952 Lepeshinskaya received permission from the Central Committee of the Communist Party to call a second All-Union Conference on Living Matter. On April 22, 1952 Lepeshinskaya opened this conference with a paper entitled “Cellular Theory at a New Stage of Development” (Lepeshinskaya, 1954, p. 7–16). In this address she presented herself as an absolute dictator in the cell theory and victor of ideological battles. Then new followers reported their fantastic achievements. Lepeshinskaya mentioned that: “I.I. Rimpan presented interesting data that show that nerve cells multiply in organisms the same way as all other cells” (ibid, p. 14). K.M. Zavadsky from Leningrad State University reported that he found that young dividing plant meristematic cells appeared from “living matter” (Zavadsky, 1954, p. 37–48)<sup>9</sup>. Professor L.S. Sutulov from Ryazan Medical Institute insisted that he observed how “living matter” was transformed into lymphatic cells, and how the connective tissue was formed from these cells later (Sutulov, 1954, p. 80–81). V.V. Averborg, a professor from Odessa, surely reported how tuberculosis bacilli enabled the transformation of non-pathogenic cells into pathogenic ones in the presence of “living matter” (Averborg, 1954, p. 100–107). The USSR Academy of Medical Sciences Corresponding Member N.I. Zazybin from Dnepropetrovsk Medical Institute went even further and pronounced obvious nonsense about the new formation of nerve fibers from living matter (Zazybin, 1954, p. 137–146).

A separate panel was devoted to the discussion of the very innovative idea of the transformation of living matter into cancerous cells (Lipchina, 1954, p. 191–106). N.N. Kuznetsov, an associate professor at the Kishenev Medical Institute reported truly sensational “discoveries” (New Data on the Problem... 1954, p. 151–157). He sewed pieces of tissues taken from the abdomen of large horned farm animals to the abdominal cavities of dogs and cats. Before the sewing took place, the future transplants were killed by treatment with formalin and 70 % alcohol with following sterilization in an autoclave and drying out at high temperature. But the author declared: the living matter is living, and cannot be killed by anything! The killed material after a short time was brought back to life: “...it preserves ...the full ability to live... New vessels arose in this tissue which through anastomosis are transformed into a submucous membrane” (ibid, p. 156). M.M. Nevyadomsky, repeated his early “discovery”: viruses (that is, non-cellular forms) are able, with the help of “living matter”, to be transformed into “lymphocyte-like” cells. Explaining what such a “cell” is like, the innovator said: “It is round, and there is no structure and no protoplasm within it”<sup>10</sup>.

The concluding declaration of the Conference emphasized two points that should be the most important for Soviet biologists:

“To enforce the future development of new principles of cell theory the struggle against the remains of the Weissmanist, Morganist, and Virchowist views ... must be considered as one of the most important tasks”<sup>11</sup>.

<sup>9</sup> In the abstracts of papers published before the opening of the conference (Abstracts of the Conference... Moscow, 1954), K.M. Zavadsky (see his abstract entitled “On the New Formation of Meristematic Cells within One Cell of the Epidermis of the Begonia Leaf,” p. 6–8), contended that in certain plant cells “in the first phases of development it is not possible to find a nucleus” (ibid, p. 7). His conclusion sounded as follows: “...a new plant is born... not though ‘differentiation’ of the cell... but through the formation of new meristematic cells within one cell of the epidermis of a begonia leaf” (ibid, p. 8).

<sup>10</sup> Medical Worker. 1948. Sept. 15 (№ 39). P. 2.

<sup>11</sup> Bulletin of the USSR Academy of Sciences (Vestnik AN SSSR). № 9. P. 108.

“The work on living matter is progressing unsatisfactorily... The work on the reformation of cytology, histology, embryology, microbiology, pathology and biochemistry is acknowledged to be unsatisfactory”<sup>12</sup>.

In her final remarks, Olga Lepeshinskaya, when she described her activity, again used political accusations against biologists. She said:

“Such a work could be completed only in the Soviet country, where leading revolutionary science is supported by the [*Communist*] Party and government and is directed by our leader, the dear, beloved by all, and the greatest scientist, Comrade Stalin.

In a multitude of letters received from the Countries of Peoples’ Democracies and from the Peoples’ Republic of China, it can be seen that the new theory is met with great interest. In all of these countries the book “The Origin of Cells from Living Matter” is being translated and published...

This is entirely not observed in capitalist countries. Fascist obscurantists from science, not only in the USA, but also in England, France, Belgium, Italy, and other countries, are intentionally silencing the issues of biological science brought forward by Soviet scientists. Nevertheless, through the iron curtains, artificially created in countries where the dollar rules over everything, news about the new discovery of Soviet science is seeping in” (Lepeshinskaya, 1952, p. 75).

Many academic journals published information about this Conference<sup>13</sup>. The President of The USSR Academy of Sciences, Sergei Vavilov (the brother of arrested and killed Nikolay Vavilov), signed a resolution addressed for fulfillment by all Soviet biologists. The resolution praised Lepeshinskaya’s views and contained the following orders to Soviet biologists:

“...to re-examine the syllabi and textbooks on general biology, histology, cytology and other disciplines with the goal of removing idealistic conceptions in these fields of knowledge...”<sup>14</sup>

“...to propose to the Editorial Boards of the biological journals published by the USSR Academy of Sciences that they subject defenders of Virchowism to criticism”<sup>15</sup>.

<sup>12</sup> Bulletin of the USSR Academy of Sciences (Vestnik AN SSSR). P. 108.

<sup>13</sup> See: Resolution of the Conference of the Academy of Medical Sciences and the Section for Biological Sciences of the Presidium of the USSR Academy of Sciences with the participation of Institutions of Higher Education // Bulletin of the USSR Academy of Sciences (Vestnik AN SSSR). № 9. P. 109–110. This resolution was published in the journal *Archive of Anatomy, Histology and Embryology*, 1952, № 9, p. 93–95 and in other journals. See also: *Khrushchov G.K.* On the Results of the Conference on the Problem of the Development of Cellular and Non-Cellular Forms of Living Matter // Bulletin of the USSR Academy of Sciences. 1952. № 9. P. 92–95. According to Khrushchov, the most important aspects of the conference were the presentations by A.A. Imshenetsky that showed that nuclei of bacteria arise anew from living matter; by Glushchenko Ya.Ye. Ellengorn and Afanasieva on the role of living matter in the formation of cells in plants; by associate professor K.M. Zavadsky, “which directly demonstrated (analogous to Glushchenko, Ellengorn and Afanasieva) the new formation of nuclei in nucleus-less cells”; by L.S. Sutulov about how “new cells of blood were formed from non-cellular structures in the lymphatic sacks of amphibians”; and by A.N. Studitsky that asserted “a regular change in cell and non-cell phases in the regeneration of the lung.” According to the opinion of G.K. Khrushchov, Professor N.I. Zazybin made “an extremely important announcement: non-cellular matter is structurally closely connected with the nervous system.” About himself, Khrushchov said that he was able to prove a “self-regeneration of loose-connective tissue, that took place through a stage of living matter” (p. 95).

<sup>14</sup> Resolution of the Presidium of the USSR Academy of Sciences of June 7, 1950 // *Izvestiya AN SSSR. Biology Series*. 1950. № 5. Point 3.

<sup>15</sup> *Ibid.* Point 7.

## “Triumph” of Gevorg Boshyan

One among those “luminaries” of science who were abruptly promoted in those years was Gevorg Mnatsakanovich Boshyan. A veterinarian by training, he worked at the All-Union Institute for Experimental Veterinary Science under the USSR Ministry of Agriculture. In 1940, he published a short article in which he disputed widely accepted methods for diagnosing anemia in horses. The 2nd World War caused a break in Boshyan’s scientific career, and his next publication (an article in a journal) came to light only in 1947. This article was written with apparent pretensions of being an innovation, although it led to no decisive turns in science.

Then, suddenly, in 1949 he published a book “On the Nature of Viruses and Microbes” (Boshyan, 1949, p. 5) that immediately drew attention to him. The author reported fantastical things, which contradicted to many of firmly accepted canons of world science.

**Discovery ONE:** “The concept... of microbiologists that the transition of viruses into microbes is impossible is fundamentally wrong and is a metaphysical one. The results of our work... disprove this statement” (*ibid.*, p. 78). “A microbe cell is comprised of thousands of viral particles, each of which can give rise to a new microbial cell” (*Ibid.*, p. 89). “Achieving the transformation of viruses into microorganisms is not at all easy, and for this a gradual “taming” of viruses to microbial cells the certain culture medium is necessary” (*ibid.*).

**Discovery TWO:** “Our experiments demonstrate the erroneousness of the proposition that viruses can develop only in the presence of living cells... viruses develop with great success in blood plasma, in serum and in the fluids of tissues and organs” (*ibid.*, p. 86). “Viruses can be developed in artificial culture mediums...” (*ibid.*, p. 142).

**Discovery THREE:** “Until now there existed the concept that bacterial allergens... are non-living components of microbial cells. Working with an anemia allergen, we became convinced that... it is possible to isolate the original microbial culture from all anemia allergens of horses” (*ibid.*, p. 112).

**Discovery FOUR:** “The declaration of D’Herelle on the bacteriophage as an independent ultra-microscopic parasite of bacteria turned out to be mistaken” (*ibid.*, p. 121).

**Discovery FIVE:** “...the modern concept regarding the non-living nature of antibiotics is mistaken and scientifically unproved. Antibiotics are nothing other than a filtered forms of those microorganisms from which they were obtained” (*ibid.*, p. 124–125).

**Discovery SIX:** “...the old concept on sterile immunity is mistaken. Any immunity against any infection is a non-sterile infectious immunity” (*ibid.*, p. 135).

**Discovery SEVEN:** “Microbe cells have been isolated from malignant tumors... A uniform culture of small bacilli was isolated from... the blood serum of three patients with stomach carcinoma, from two patients with carcinoma of the mucous of the mouth and the urinary bladder, and also from the filtrate of a mammary gland tumor” (*ibid.*, p. 74).

**Discovery EIGHT:** “The isolation of live microbes from what were earlier thought to be sterile compounds... disproves the results of the famous experiments of Louis Pasteur dealing with this question” (*ibid.*, p. 146).

### A Tapeworm, *Echinococcus*, is Being Transformed In Human Bones!

In the article published in the journal of the USSR Academy of Sciences, *Uspekhi sovremenoj biologii* ("Achievements of Modern Biology") Gaspar A. Melkonyan declared that the tapeworm *Echinococcus* (mammalian body parasite) might be transformed in human bones (Melkonyan, 1951, p. 309–311). The echinococci were extracted by him from a human shin bone and placed for several years in formalin (a mixture of formaldehyde and methyl alcohol) that is poisonous for all living cells. Formalin is used for preserving museum specimens and for preventing the growth of bacterial or fungal cells that seep in from the air. However, after many years of being in formalin, in full accordance with the law of the transformation of non-living matter into living matter discovered by Lepeshinskaya, living, growing bones appeared in the jar with the echinococcus cysts.

"Facts are a stubborn thing [Melkonyan is repeating a well-known phrase of Stalin's that was very popular in those years – V.S.], and they must be considered and cannot be ignored, otherwise there cannot be progress in science... We almost gave in to this temptation of negativity and ignoring facts... when, observing the fact of the formation of bone tissue in the jar instead of the preserved sample, we thought at first it was mischief by one of the patients, who had replaced the specimen with bones... Only upon more sober discussion... we were prevented from throwing the jar with the bones away and searching for the 'mischief maker' ...Soon in that very same jar and in the same fluid [in formalin! – V.S.] after the bones were removed, more and more new bones again began to form, which gives us the right to come to believe in the authenticity of the observed fact" (ibid, p. 309).

Professor Melkonyan lost his calm. He began to run from one professor of the Yerevan Medical Institute to another, begging them for help. His colleagues — Professors and Heads of different Departments of that Institute — Aleskanyan, Babreilyan, Bunatyan, Chakhmakhchyan cordially offered him their friendly help: they confirmed "the formation of bones again in the jar", conducted chemical analyses, looked for "collagen fibers in polarized light", "discovered a dual light Nicol refraction, which is characteristic for the presence of collagen fibers". "The interference of beams of light also gave a positive result" (ibid). Melkonyan delivered a paper at the Third Conference of Surgeons of the Transcaucasus Countries on September 30, 1947, and then his article was published in Moscow in the journal of the USSR Academy of Sciences.

No less a soul-shaking discovery was made by Faina N. Kucherova, a researcher from the Rostov-Don University. She ground up — what would you think? — MOTHER OF PEARL buttons. She then injected the powder into the body of animals and observed the following: LIVING MATTER AROSE FROM THE POWDER (Kucherova, 1950, p. 145–160). She stated that these changes were inheritable. "And what of it?" Kucherova explained. "Mother of pearl is made from shells, and shells used to be living! Thus, they have preserved the characteristic of a living thing." Kucherova defended her PhD dissertation on the basis of this observation, and the Higher Certifying Commission awarded her the desired degree! All the more so as the deputy chairman of the biological and medical council of the Commission was a devout Lysenkoist N.N. Zhukov-Verezhnikov.

After that she became the head of the Department of Histology. Apparently, Kucherova was considered in the university to be a promising teacher, because when the Department of Histology was closed, she was transferred as an associate professor... to the Physics Department, and in the 1970s she defended her dissertation of Doctor of Sciences, and not just anywhere, but at Moscow State University.

\* \* \*

Intervention of Soviet totalitarian leaders in science has led to tragic consequences both for science and for the societal morale. Charlatans and demagogues occupied leading positions in the scientific and educational institutions, whereas gifted scientists and productive professors lost their jobs. Russian science that was at the forefront of world science lost its reputation and is still suffering due to this politically motivated ignorance of Communist leaders.

### References

- Averburg V.V.* On the question of the Origin and Role of Certain Cellular Elements in the Place of Introduction of Tuberculosis Bacilli (BCG) // New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter. Moscow: Published by the USSR Academy of Medical Sciences, 1954. P. 100–107.
- Avotin-Pavlov K. Ya.* Samoprivivka eli k sosne [Self-grafting of Spruce to Pine] // Lesnoye khozyaistvo [Forestry]. 1951. № 11. P. 88–90.
- Boshyan G.M.* O prirode virusov i mikrobov [On the Nature of Viruses and Microbes]. Moscow: Medgiz, 1949.
- Karapetyan V.K.* Izmenenie prirody tverdyh pshenic v mjagkie [Change in the Nature of Hard Wheat into Soft Wheat] // Agrobiology. 1948. № 4. P. 5–21.
- Kucherova F.N.* Upravlenie emdrionalnym razvitiem jivotnyh putem vozdejstvija therez materinskiy organizm [Regulating embryological development in animals by means of influencing the body of the mother] // Uspehi sovremennoj biologii [Achievements of Modern Biology]. 1950. Vol. 28. № 1. P. 145–160.
- Lepeshinskaya O.B.* Proiskhozhdeniye kletok iz zhivogo veshstva i rol zhivogo veshstva v organizme [The Origin of Cells from Living Matter and the Role of Living Matter]. Moscow: Publ. House of the USSR Academy of Sciences, 1945. (With a forward by T.D. Lysenko).
- Lepeshinskaya O.B.* Razvitie gizznennyh processov v dokletohnom periode [The Development of Life Processes in the Pre-Cell Period] Presentation at the Conference on the Problems of Living Matter // Stenographic Report of the Conference on the Problems of Living Matter and the Development of Cells, 22–24 May, 1950. Moscow: Publishing House of the USSR Academy of Sciences, 1950. P. 9–34.
- Lepeshinskaya O.B.* Proiskhozhdeniye kletok [The Origin of Cells]. Moscow: Voen-izdat, 1952a.
- Lepeshinskaya O.B.* Kletka, ee gizzn` i proishojdenie [Cell, Its Life and Origin]. Moscow: Goskul't-prosvet-izdat, 1952b.
- Lepeshinskaya O.B.* Cell Theory at a New Stage of Development // New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter: Proceedings of the Conference on Development of Cellular and Non-Cellular Living Matter in Light of the Theory by O.B. Lepeshinskaya. Moscow: Published by the USSR Academy of Medical Sciences, 1954. P. 7–16.
- Lepeshinskaya O.B.* Put' v revolutsiyu: Vospominaniya staroi bol'shevichki [Path to Revolution: Reminiscences of old Bolshevik woman]. Perm': Permskoye knizhnoe izdatelstvo, 1963.
- Lipchina L.P.* On methods of multiplication of cancer cells // New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter. Moscow: Published by the USSR Academy of Medical Sciences, 1954. P. 191–106.
- Lysenko T.D.* Agrobiologija [Agrobiology]. 6<sup>th</sup> ed. Moscow: Sel'khozgiz, 1952. 688 p.
- Lysenko T.D.* Jarovizatsia ozimi — moguthee sredstvo povysheniz urojainisti [Vernalization is a mighty tool for increasing yields] // Pravda. 1935. № 45. 15 Febr.
- Lysenko T.D., Nurmatov D., Maltsev T.C., Kurnosenko A.A.* Selskohozjaistvennaja nauka i kolhoznoe opytnthestvo [Agricultural Science and Collective Farm Experimentalism] // Second All-Union Congress of Collective Farm Members-Shock Workers. Moscow: Sel'khozgiz, 1935. P. 14–15.
- Melkonyan G.A.* O vozmojnosti osteogeneza vne organizma posle anabioza kostnyh rletok [On the Possibility of Osteogenesis Outside of the Body after the Anabiosis of Bone Cells] // Uspehi sovremennoj biologii [Achievements of Modern Biology]. 1951. Vol. 30. P. 309–311.

*Mukhin N.D.* Izmeneniya obytnykh form m'jagkoi i jarovoi pshenici v vetvistye [Changes in Normal Forms of Soft and Spring Wheat Into Branched Wheat // *Agrobiology*. 1952. № 4.

Novye Dannye po probleme razvitiya kletotnykh i ne kletotnykh form zhivogo veshstva [New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter: Proceedings of the Conference on Development of Cellular and Non-Cellular Living Matter in Light of the Theory by O.B. Lepeshinskaya]. Moscow: Published by the USSR Academy of Medical Sciences, 1954. Series "Problems of Medicine" (eds. I.N. Maysky, O.B. Lepeshinskaya, S.Ye. Severin, A.A. Imshenetsky, I.Ye. Glushchenko, G.K. Khrushchov, A.N. Studitsky).

O polozhenii v biologicheskoi nauke. Stenograficheskii otchet sessii Vsesoiuznoi akademii sel'skokhozi- aistvennykh nauk imeni V.I. Lenina 31 iul'ia — 7 avgusta 1948 g. [On the situation in biological science. A verbatim report of the meeting of VASKhNIL on July 31 — August 7, 1948] Moscow: Selkhozgiz, 1948. 536 p.

Sovetshanie po probleme zhivogo veshstva i razvitiya kletok [Stenographic Report of the Conference on the Problems of Living Matter and the Development of Cells, 22–24 May, 1950]. Moscow: Publishing House of the USSR Academy of Sciences, 1951.

*Sutulov L.S.* New Materials for the Theory of O.B. Lepeshinskaya on the New Formation of Cells from Living Matter // On the Situation in Biological Science. Stenographic Report on the Session of VASKhNIL. Moscow: Sel'khozgiz, 1948. P. 80–81.

*Tumanyan M.G.* Ob eksperimental'nom poluzhenii m'jagkikh pshenic iz tverdyykh [On the Experimental Obtaining of Soft Wheat from Hard Wheat] // *Agrobiology*. 1941. № 2. P. 13–18.

*Zavadsky K.M.* O novoobrazovanii meristematicheskikh kletok pri vegetativnom razmnogenii ras- teniy list'jami [On the New Formation of Meristematic Cells During Vegetative Reproduction in Leafy Plants // New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter. Moscow: Published by the USSR Academy of Medical Sciences, 1954. P. 37–48.

*Zazybin N.I.* On Several Unstudied Forms of Nerve Tissue Interactions // New Data on the Problem of Development of Cellular and Non-Cellular Forms of Living Matter. Moscow: Published by the USSR Academy of Medical Sciences, 1954. P. 137–146.

## Сталин и борцы с клеточной теорией

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Вторжение советского тоталитарного режима в науку привело к трагическим последствиям. Многие должности в науке и образовании были заняты шарлатанами и демагогами, тогда как талантливые ученые и педагоги потеряли работу. Примером тому служит выдвижение старого большевика Ольги Борисовны Лепешинской, которая заявила в 1930 г., что она разработала теорию о создании клеток из внеклеточной «живой» материи. Большинство ученых выступало против этой «теории», но к ней с энтузиазмом отнеслись И.В. Сталин и Т.Д. Лысенко. По приказу Сталина было созвано особое совещание двух советских академий — Академии наук СССР и Академии медицинских наук, — на котором заявления Лепешинской были поддержаны 27 советскими биологами, заклеившими буржуазную клеточную теорию. В 1939 г. к юбилею Сталина были учреждены Сталинские премии. Номинантов выбирали сам Сталин и специальная комиссия. В 1950 г. эта премия была выдана в обход всех процедур и в непопозженное время всего лишь одному номинанту — О.Б. Лепешинской за открытие «живой материи». В конечном итоге советская биология, бывшая до того на передовой мировой науки во многих областях, потеряла свою репутацию.

**Ключевые слова:** советский режим, клеточная теория, «живая материя», Сталинская премия, О.Б. Лепешинская.

## The Uses of the Dead in the Science of Life: A Thanatology of Lysenkoism<sup>1</sup>

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This article applies U.S. anthropologist Katherine Verdery's analysis of the animation of the dead in East European politics, to a historical study of Lysenkoism. Verdery convincingly described the use of those who have passed away to influence current events, and the interpretation of history, in Eastern Europe. Verdery focused on the practices of commemoration and reburial. While these are important topics within the Lysenko controversy, biology — as the study of life — also invites us to consider Verdery's framework in scientific terms as well. I describe three instances in the history of Lysenkoism, where the dead were enlisted for political use. I use the term "politics," as Verdery does, to refer to behavior intended to make policy, justify action, claim authority, and manipulate meaning and context. My first example — the tragic suicide of Viennese Zoologist Paul Kammerer — may be interpreted as a precursor to the Lysenko controversy. The second — an essay published by Polish architect Szymon Syrkus in a 1948 issue of *Architektura* (Architecture) — is an example of when the dead were used in support of Lysenko. The third — the entry on Lamarck by University of Pennsylvania botanist Conway Zirkle, in the 1961 *Encyclopedia Britannica* — shows an instance where a deceased individual was used against him. I am interested not only in how those no longer around to speak for themselves were used to achieve a goal, vis-à-vis Lysenko, but the motivations of those involved. I also explore how notions of life, death and rebirth — so deeply embedded in the Lysenko controversy — may be re-imagined accordingly, and inform our understanding of what the word "Lysenkoism" means.

**Key words:** Lysenkoism, Michurinist biology, Katherine Verdery, science of life, the dead scientists.

In *The Political Lives of Dead Bodies: Reburial and Postsocialist Change*, anthropologist Katherine Verdery described the use of those who have passed away to influence current events, and the interpretation of history, in Eastern Europe. As Verdery noted, this phenomenon is not exclusive to the history of the Cold War. The "political life of dead bodies" stretches back to the classical period, and continues through the importance attached to the reburial of significant figures in the history of the Enlightenment, such as Thomas Paine and Napoleon Bonaparte. The most obvious example of the symbolic power wielded by the dead in the history of communism is probably the removal of Stalin from Lenin's tomb, and his reburial in a corner of the Kremlin wall, in 1953. The body count goes much higher once you consider the Cold War as a global event, and includes personalities ranging from Che Guevara — whose body was claimed for reburial by three different countries — and Pol Pot — whose corpse was nearly put on trial in the hopes of providing his victims with catharsis (Verdery, 1998, p. 1–3).

The "Lysenko affair" is a topic which begs interpretation within Verdery's framework, because not only was the question of "life" (i. e. how organisms evolve) at the center of it, but what the dead thought, said, or believed, was fundamental as well. This is most clearly true in

<sup>1</sup> Editors' note: The editorial board considers the paper as a work in progress, and not as a completed piece of research. It poses more questions than provides answers. However we believe the author's approach to be very interesting and promising, and therefore we are delighted to publish his paper in our journal.