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Who was Lysenko ?

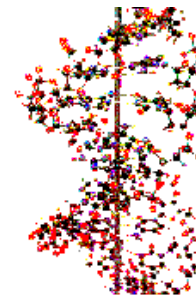
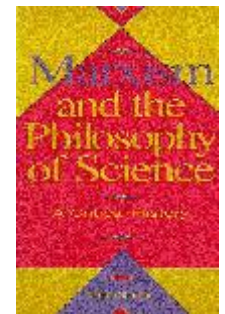
What was Lysenkoism ?

[Helena Sheehan](#)

The following is an extract from my book [Marxism and the Philosophy of Science: A Critical History](#) (Humanities Press International 1985 and 1993).

Other extracts are the [introduction](#) and [conclusion](#) to chapter 5 on the [Comintern](#), as well as sections on on [Bernal](#) [Haldane](#) and [Caudwell](#).

Chapter 4 on [Marxism in power](#) (click [here](#) for the first few pages of the chapter and [here](#) for the [conclusion](#) of the chapter) sketches the circumstances of the October Revolution of 1917 and its consequences for intellectual life, particularly for philosophy and science. It deals with the relationship of the bolsheviks to both the old and new intelligentsia and the creation of new institutions, such as the Communist Academy, the Institute of Red Professors and the journal *Under the Banner of Marxism*. It then outlines the contending positions in philosophy of science and the politics of philosophy and science as the 1920s unfolded and moved into the 1930s. It turns subsequently to the particular sciences and analyses the debates within psychology, physics ... and then biology.



The Biology Debate

Things went very differently for Soviet biologists. In the 1920s, the debate was focused on the conflicting claims of genetics, as elaborated by such scientists as Mendel and Morgan, and Lamarckism, which was experiencing something of a resurgence.*

* Genetics was in its formative stages as a science in the early 20th century and was based on the experiments of such scientists as the Czech monk Gregor Mendel, the German August Weissmann, and the American T.H. Morgan. It located the transmission of heredity in the genes - particulate, material, self-reproducing, intracellular units, which functioned as carriers of inheritance. Mutations occurred spontaneously by random selection. In this way, it accounted for both the relative stability and the variability of species. Lamarckism, derived from the work of the French scientist Jean-Baptiste de Lamarck, who sought to explain the mechanism of evolution, came to stand for the belief that transformation of species occurred as the result of many individuals simultaneously adapting to common environmental stimuli.

At first, many Soviet biologists were favourably disposed towards both. They discerned in genetics the material basis of individual heredity, but they believed that it was inadequate in explaining the evolution of the species or the influence of the environment in the process of evolution. Lamarckism was viewed sympathetically as answering these supposed inadequacies.*

*There did seem to be something of a tension between genetics and evolution early in the century, as genetics seemed to emphasise stability at the expense of development. However, as the science developed and as the process of mutation became clearer, its explanatory power broadened.

Research was carried on by experimenters of both orientations. The Timiriazev Institute was a centre of Lamarckist research. The Communist Academy offered a laboratory to the Austrian Lamarckist Paul Kammerer in 1925**

**Kammerer accepted the post. However, returning to Vienna for his books and equipment, he was confronted with evidence of fraud in one of his crucial experiments, and shot himself. Cf. Arthur Koestler's biography of Kammerer, *The Case of the Midwife Toad* (London, 1971).

Meanwhile, the geneticists pursued their research as well. Some, such as B.M. Zavadovsky and K.A. Timiriazev, argued for the compatibility of Morganist and Lamarckist assumptions and urged a reconciliation of the two points of view. In a series of discussions held at the Communist Academy in the late 1920s, militant Morganists, such as A.S. Serebrovsky, I.I. Agol, and N.P. Dubinin, argued forcefully against any such reconciliation. They insisted on the absolute irreconcilability of Morganism and Lamarckism.

The key question was that of the inheritance of acquired characteristics. Lamarckists cited Engels on their behalf. B.M. Zavadovsky and others of his persuasion replied that they could not be tied to outdated science and had to break with belief in the inheritance of acquired characteristics, even if this meant abandoning views held by Marx and Engels or Darwin and Timiriazev.

Lamarckists accused Morganists of undermining scientific determinism by reducing evolution to accident and chance. Morganists replied with charges of anthropomorphism and argued that their picture of evolution as random, undirected mutation was the surest defence of scientific determinism against the revival of teleology. Zavadovsky noted nonetheless that in the mid-1920s voices in favour of Lamarckism were growing louder and stronger, as he had good reason to know, for he had been challenged by his students at Sverdlov Communist University who considered genetics to be a "bourgeois science."

At the April 1929 conference of Marxist-Leninist scientific institutions, Morganists linked Lamarckism with mechanism and pushed for a formal repudiation of Lamarckism, as well as of mechanism. In this they were not successful. Nevertheless, Morganism most definitely had achieved the edge in the biological debate. Agol and others asserted confidently that Morganism was the realisation of dialectical materialism in biology. They established in the minds of many a connection between Morganism in biology and

Deborinism in philosophy. This was to their advantage in the period when Deborinism was at its moment of victory, but it was not a factor in their favour when the latter came to be labelled "menshevizing idealism."

In 1930, however, both Morganism and Deborinism were in the ascendant. At the all-union congress of biologists in that year, Morganists announced that Lamarckism was in conflict with Marxism by virtue of its teleological character, whereas dialectical materialism was implicit in the science of genetics. This group included not only the biologists Agol, Serebrovsky, and Levit, but also the philosopher Present, shortly to become one of the harshest and most implacable opponents of genetics.

One somewhat confusing aspect of this debate was the fact that Lamarckism was repeatedly identified with both mechanism and vitalism. Perhaps on the part of some authors this could be put down to overly facile and superficial labelling. Zavadovsky's remarks on the tendency of these two extremes to pass into one another in his 1931 paper at the history of science congress in London, however, offered some justification for it. The theory of evolution, Zavadovsky further argued, was passing through a crisis that could not be solved by any eclectic reconciliation. The Lamarckian man-in-the-street explanation of heredity had the virtue of simplicity, but it was a simplicity that had been outgrown by science. Heredity could now receive its true explanation only according to the more complex formulae of Mendelism and Morganism. He did, however, take exception to the autogenetic enthusiasm of those geneticists, who altogether ignored the influence of external environment.

Aside from the references to dialectical materialism, the debate among Soviet biologists developed along lines parallel to the debate among biologists elsewhere. Everywhere Lamarckism was losing ground to genetics in response to the mounting experimental evidence. The turning point in the debate came in 1927 with the highlight of the 5th international congress of genetics in Berlin, the announcement of H.J. Muller's discovery of methods for artificially producing mutations. This discovery, as Serebrovsky excitedly announced in his September 11, 1927 *Pravda* article entitled "four pages that shook the scientific world" was thought to be the decisive blow to Lamarckism.

The debate continued, but the balance had shifted. V.L. Komarov, the vice-president of the Academy of Sciences, was typical of his generation of biologists with Lamarckist sympathies who were becoming more and more critical of Lamarckism and more and more favourably disposed towards genetics. He began to remark on the poverty of Lamarck's factual material and on the predominance of deduced conclusions and to stress the importance of starting from the facts and combining inductive and deductive methods.

Both Lamarckists and Morganists were at this time claiming unto themselves the mantle of proletarian science. Lamarckists asserted that their position meant that the working class were not slaves of the past but creators of the future. Morganists replied that the persistence and resisting power of hereditary characteristics was more in the interests of the working class as it explained the survival of their human potentialities through generations of poverty, underfeeding, and, generally, the most unfavourable external conditions. Such arguments, however, were not unique to the Soviet debate, but were a feature of the discussion elsewhere as well.*

* In an article entitled "Science and Values: The Eugenics Movement in Germany and Russia in the 1920s" Loren Graham shows that there were in the 1920s Marxists who were eugenicists and those who were Lamarckists, as well as anti-Marxists among both groups. A decade later this situation in both countries was replaced by one in which genetics and eugenic theories were linked to conservative political views, and Lamarckist theories were linked to left-wing political views. (*The American Historical Review* December 1977).

However, about this time the Soviet debate was set along an altogether distinctive path by an entirely new factor. The militant bolshevists were demanding that biology, like every other science, be reconstructed on the basis of dialectical materialism. The tendency was to assume that both Lamarckism and Morganism were foreign and therefore bourgeois and needed to be replaced by a new, distinctively Marxist and thoroughly proletarian biology that would transcend both Lamarckism and Morganism.

B.P. Tokin, embryologist and director of the Timiriachev Institute declared that Marxists must stop tailing along behind bourgeois science and create "a single Marxist-Leninist school in biology." As to what such a school would be like, there was only the vaguest

idea, but there was a certainty that it would prove itself by its relevance to the tasks of social construction, particularly by its practical service to Soviet agriculture.

There were heady proclamations about the indissoluble unity between Soviet biological science and Soviet agriculture, but no new theoretical breakthroughs. There was much groping, but no sign of a specifically proletarian biology. Most working biologists continued to accept the same assumptions as their foreign colleagues and in doing so were in fact conscientiously serving Soviet agriculture. Serious work in genetics was proceeding and compared favourably with the state of research anywhere else.

And then onto the stage stepped Lysenko.

TD Lysenko (1898-1976)

Lysenkoism

Trofim Denisovich Lysenko was a young agronomist from the Ukraine, who first came into the limelight in 1927 in connection with an experiment in the winter planting of peas to precede the cotton crop in the Transcaucasus. His results, in his remote station in Azerbaijan, were sensationalised in *Pravda*. The article projected an image of him as a sullen "barefoot scientist" close to his peasant roots.

Lysenko subsequently became famous for the discovery of "vernalisation," an agricultural technique that allowed winter crops to be obtained from summer planting by soaking and chilling the germinated seed for a determinate period of time. He was the first to use the term "vernalisation," but not in fact the first to discover this technique, as N.A. Maksimov was quick to point out. Lysenko ignored previous studies of thermal factors in plant development and reacted angrily to Maksimov's claim to scientific priority and to his criticisms of Lysenko's experimental techniques.

After being overshadowed by Maksimov at the all-union congress of genetics, selection, plant and animal breeding held in Leningrad in January 1929, Lysenko organised a boisterous campaign around vernalisation, and made extravagant claims based on a modest experiment carried out by his peasant father. The Ukrainian Commissariat of Agriculture, in the hope of raising productivity after two years of famine, ordered massive use of the vernalisation technique. Lysenko was moved to a newly created department for vernalisation at the All-Union Institute of Genetics and Plant Breeding in Odessa. There he began to publish the journal *Yarovizatsiya* (Vernalisation) in which he disseminated his ideas on a wide scale and created a mass movement around vernalisation.

The next stage in Lysenko's career came when, from 1931 to 1934, he began to advance a theory to explain his technique. According to the idea of the phasic development of plants, a plant underwent various stages of development, during each of which its environmental requirements differed sharply. The conclusion Lysenko drew from this was that knowledge of the different phases of development opened the way for human direction of this development through control of the environment. It was a very vague theory, never to be spelt out very fully, but it provided the link in the evolution of Lysenko's platform from a simple agricultural technique to a full-scale biological theory.

The underlying theme was the plasticity of the life cycle. Lysenko came to believe that the crucial factor in determining the length of the vegetation period in a plant was not its genetic constitution, but its interaction with its environment.

Lysenko's theory developed in a pragmatic and intuitive way as a rationalisation of agronomic practice and a reflection of the ideological environment surrounding it and not as a response to a problem formulated within the scientific community and pursued according to rigorous scientific methods. But the impression was created that Lysenko achieved results at a time when there was a

great demand for immediate results and a growing impatience with the protracted and complicated methods employed by established scientists in achieving them.

Lysenko's fame as the sort of man who would achieve results continued to spread. With it came a sympathetic hearing for whatever theoretical views he chose to express, no matter how vague or how unsubstantiated. Lysenko's practical achievements were extremely difficult to assess. His methods were seriously lacking in rigour, to put it mildly. His habit was to report only successes. His results were based on extremely small samples, inaccurate records, and the almost total absence of control groups. An early mistake in calculation, which caused comment among other specialists, made him extremely negative toward the use of mathematics in science.

Contemporaneous with Lysenko's vernalisation movement was a growing interest in the work of Michurin, the last in the line of an impoverished aristocratic family in central Russia, who cultivated fruit trees and began experimenting with grafting and hybridisation. Michurin worked on the assumption that the environment exercised a crucial influence on the heredity of organisms and he queried the relevance of Mendel's "peas laws" to fruit trees. Michurin's name was soon to be seized upon by Lysenko to designate a whole new theory of biology in opposition to classical genetics, even though Michurin himself had no such theoretical pretensions. Nor was he so anti-Mendelist as Lysenko began to make him out to be, for he did not hold to environmental influence on heredity to the exclusion of a recognition of the internal genetic constitution of the organism. Indeed, before his death in 1935, he began to acknowledge the validity of Mendelism.

Up until 1935, neither the agronomic experiments of Lysenko in vernalisation, nor those of Michurin in graft hybridisation, were seen to have any direct bearing on the theoretical debate in Soviet biology. Geneticists carried on with their work, although there was constant tension surrounding it.

In 1931 and 1932, a number of geneticists were branded as "menshevizing idealists" and lost their positions at the Communist Academy. There was increasing pressure to abandon basic research that was unlikely to lead to immediate practical measures that would advance Soviet agriculture and there were strong implications that research in "pure science" was tantamount to sabotage.

A particularly vicious article that appeared in the influential newspaper *Ekonomicheskaya zhizn* in 1931 was directed against Academician N.I. Vavilov, founder and president of the Lenin Academy of the Agricultural Sciences, director of its All-Union Institute of Plant Breeding, as well as director of the Institute of Genetics of the Academy of Sciences. Vavilov was an internationally eminent plant geneticist and an ardent advocate of the unity of science and socialism. The article, which appeared with editorial endorsement, was written by a rather unsuccessful subordinate of Vavilov's, A.K. Kol, who accused Vavilov of a reactionary separation of theory and practice and advised him to stop collecting exotica and to concentrate on plants that could be introduced directly into farm production.

Unrealisable goals were imposed on Vavilov's All-Union Institute of Plant Breeding in 1931 and in 1934 he was called in by the Council of Peoples Commissars to account for the "separation between theory and practice" in the Lenin Academy of the Agricultural Sciences.

Lysenko was very much a part of this campaign, stirring up a negative attitude to basic research and virulently demanding immediate practical results. He was capable of the crudest anti-intellectualism, remarking on one occasion: "It is better to know less, but to know just what is necessary for practice." He also was inclined to enunciations of the wildest voluntarism: "In order to obtain a certain result, You must want to obtain precisely that result; if you want to obtain a certain result, you will obtain it I



need only such people as will obtain the results I need". Older scientists were, of course, horrified at such talk, so utterly alien to the habits of mind in which scientific method was grounded.

But Lysenko was the man of the hour, suited as he was to step into the role of the man of the people, the man of the soil, who had come up from humble origins under the revolution and who directed all of his energies into the great tasks of socialist construction. He knew well how to whip up massive peasant support, how to woo journalists, and how to enlist the enthusiasm of party and government officials. He began to be pictured as the model scientist for the new era. He was credited with conscientiously bringing a massive increase in grain yield to the Soviet state, while geneticists idly speculated on eye colour in fruit flies.

Lysenko made the most of this image and became more and more virulent in attacking geneticists and contrasting their "useless scholasticism" with his own great "practical successes." He began to speak of class struggle in science and declared in his speech at the 2nd all-union congress of shock collective farmers in 1935 that "a class enemy is always an enemy whether he is a scientist or not." Stalin, who was present, exclaimed at the end of his speech "Bravo, Comrade Lysenko, bravo."

Another new stage began for Lysenko in 1935 when, no longer a simple practising agronomist experimenting with a new technique, he came forward as herald of a new biology born out of Soviet agronomic practice. He was assisted in making this leap through his collaboration with Prezent, a party member*

*Interestingly, Lysenko was never a member of the Communist Party.

and specialist in educational methodology in the natural sciences who had philosophical training and who was extremely adept at the sort of ideological demagoguery that was beginning to flourish among a certain section of the younger intelligentsia. It is likely that Prezent brought Lysenko to see the ideological possibilities of his vernalisation movement.**

**Not that the new theory of heredity followed logically and necessarily from his agronomic techniques.

Together they announced a new theory of heredity that rejected the existence of genes and held that the basis of heredity did not lie in some special self-reproducing substance. On the contrary, the cell itself, in their view, developed into an organism, and there was no part of it not subject to evolutionary development. Heredity was based on the interaction between the organism and its environment, through the internalisation of external conditions. They thus recognised no distinction between genotype and phenotype.***

***The *genotype* refers to the complex genes hereditarily transmitted to the individual. The *phenotype* designates the totality of characteristics displayed by an individual and is the result of the interaction between heredity and environment.

The science of genetics was denounced as reactionary, bourgeois, idealist and formalist. It was held to be contrary to the Marxist philosophy of dialectical materialism. Its stress on the relative stability of the gene was supposedly a denial of dialectical development as well as an assault on materialism. Its emphasis on internality was thought to be a rejection of the interconnectedness of every aspect of nature. Its notion of the randomness and indirectness of mutation was held to undercut both the determinism of natural processes and man's ability to shape nature in a purposeful way.

The new biology, with its emphasis on the inheritance of acquired characteristics and the consequent alterability of organisms through directed environmental change, was well suited to the extreme voluntarism that accompanied the accelerated development of the drive to industrialise and collectivise. The idea that the same sort of willfulness could be applied to nature itself was appealing to the mentality of those who wished to stress that Soviet man could transform the world in whatever way he chose to do

so. Lysenko's voluntarist approach to experimental results and to the transformation of agriculture was the counterpart of Stalin's voluntarist approach to social processes, undoubtedly a factor in Lysenko's managing to capture Stalin's imagination in this period.

However, other political leaders and scientific administrators were not so easily swayed. There was strong resistance within the Academy of Sciences and Bukharin let it be known that he sided with the geneticists - not that this went very well for them once Bukharin was condemned. But the geneticists fought their corner and had very influential support.

A climactic point in this new debate was reached at a special session of the Lenin Academy of the Agricultural Sciences held December 19 to 27, 1936, and devoted to a discussion of the two trends in Soviet biology, now designated as the Mendelist-Morganist trend and the Darwinist-Michurinist trend. The official goal set for the conference was to achieve a reconciliation of the two schools of thought, some kind of accommodation for genetics within the framework of Lysenko's agrobiolgy. The outcome was the opposite.

The open confrontation of the two trends resulted in drawing the lines more sharply than ever and in highlighting the irreconcilability of the two contrasting lines of approach. There were some compromisers present, such as B.M. Zavadovsky and N.P. Krenke, but the overall mood was a severely uncompromising one. The most intransigent group was that of Lysenko, Present, and their followers. The geneticists fought hard and unflinchingly for the future of their science, although it must be said that they were more than willing to concede the value of Lysenko's work in the sphere of agronomy. Vavilov, for example, was favourably disposed to Lysenko's ideas about the phasic development of plants and summer planting of potatoes. But nothing less than the total renunciation of the science of genetics by the geneticists would placate the Lysenkoites.

Serebrovsky spoke bitterly against the Lysenkoite attacks on some of the greatest achievements of the 20th century and charged them with using revolutionary slogans towards reactionary ends. They were attempting to thrust Soviet science backward a half-century and this could only hinder the effort to establish scientific research on a new socialist basis. Dubinin posed the issues in similar terms.

The sharpest speech in the defence of genetics came from the American geneticist H.J. Muller, a foreign member of the USSR Academy of Sciences who had come to work in the Soviet Union out of commitment to the possibilities of science under socialism. Muller was also inclined to philosophical reflection on his science and had very definite views as to the place of genetics within the framework of a dialectical materialist philosophy of science. He turned the charge of idealism back against the Lysenkoites and accused them of being machists, hiding behind the screen of a falsely interpreted dialectical materialism.

In the period following the conference, the Lysenkoites carried on a campaign against the geneticists that became more and more vicious and more and more slanderous. Scientific and philosophical arguments increasingly gave way to political ones. The pursuit of genetics was spoken of as synonymous with adherence to the cause of reaction ...and this was identified with racism and fascism. Yakovlev, one of the highest administrators in Soviet agriculture, referred to genetics as the "handmaiden of Goebbels' department". Various geneticists and supporters of genetics were named and accused of sabotage, wrecking, espionage, terrorism, and Trotskyism. Present, in a 1937 article, singled out Agol, Uranovsky, and Bukharin as representing the "powers of darkness" opposing the creative direction being taken by Soviet biology. These bandits and Trotskyists had supposedly sold out, wholesale and retail, the interests of Soviet science.

The main target of the campaign was Vavilov, who was becoming ever more resolute and forthright in defending genetics and resisting the forces moving to destroy it. He was identified by the opposition as the main stumbling block standing in the way of complete victory for Lysenko's views. Vavilov believed the situation was becoming intolerable and complained of Lysenko's low level of culture, his outmoded scientific views, but most of all about his intolerance and the reprisals that were taken against those who disagreed with him. Vavilov was defiant, despite the danger, and he declared in 1939:

We shall go the pyre, we shall burn, but we shall not retreat from our convictions. I tell you, in all frankness, that I believed and still believe and insist on what I think is right.... This is a fact, and to retreat from it simply because some occupying high posts desire it is impossible.

Vavilov was not being overdramatic. Already he had lost his position as president of the Lenin Academy of Agricultural Sciences, succeeded first by A.I. Muralov and then by G.K. Meister. In 1937, each of these in his turn was arrested and in 1938 Lysenko succeeded to the post. In 1938 Vavilov was rebuked by the presidium of the Academy of Sciences for isolating the Institute of Genetics from the trend stemming from Academician Lysenko's scientific work. Prior to this, a campaign against A.K. Koltsov, director of the Institute of Experimental Biology, had cleared the way for the election of Lysenko as academician.

In 1940, Vavilov was himself arrested, and Lysenko replaced him as director of the Institute of Genetics of the Academy of Sciences. In 1941, Vavilov stood trial and was found guilty of sabotage in agriculture, belonging to a rightist conspiracy, spying for England, and a string of other charges. Although he denied all accusations and the "evidence" consisted of false testimony, he was sentenced to death. After spending several months in a death cell, Vavilov's sentence was commuted, but he died in prison in 1943 of malnutrition.*

**Vavilov was posthumously rehabilitated by the USSR Supreme Court in 1955, before the 20th Congress of the CPSU.*

Vavilov was not the only one. The growing ascendancy of Lysenko coincided with the purges that reached into virtually every Soviet institution during 1936 to 1939. Already, before Vavilov's arrest, the losses among Soviet biologists had been staggering. In 1936, Israel Agol, Max Levin, and Solomon Levit, all communists working in the field of biological theory, were publicly denounced as "enemies of the people" and arrested. With regard to Agol and Levin, the charges involved vague references to "menshevizing idealism" and association with a trotskyst conspiracy. As to Levit, the director of the Institute of Medical Genetics, his studies of human heredity had supposedly made him an abettor of nazi doctrines, or so it was declared at a meeting of the science division of the Moscow party organisation, presided over by Amost Kolman. Levit died in prison and his institute was closed. The other two were shot.**

***All three were posthumously rehabilitated, as were a number of other biologists and agricultural specialists who perished during this period.*

They were followed by a host of others. Many were arrested. Of these some were shot, while others simply died in prison. Others were witch-hunted, lost their jobs, and were forced into other areas of work. Institutes were closed down. Journals ceased to appear. Books were removed from library shelves. Texts were revised. Names became unmentionable. The 7th international congress of genetics, which was scheduled to be held in Moscow in August 1937 was cancelled. When the congress did take place in Edinburgh in 1939, no Soviet scientists were present, not even Vavilov who had been elected its president.

Nevertheless, the opposition was still strong. The effects of the purge had been somewhat uneven. Ironically, in some cases, the most outspoken and defiant survived, while the more compromising elements perished. Serebrovsky, Dubinin, Koltsov, Zhebrak, M.M. Zavadovsky, and others continued to resist Lysenkoism. D.N. Prianishnikov had the audacity to nominate the imprisoned Vavilov for a Stalin prize. Many of their colleagues, however, gave way under the pressure, engaged in abasing self-criticism, and acknowledged the superior wisdom of Lysenko. The degree of demoralisation was overwhelming.

In October 1939, there was another conference called in another effort to achieve some sort of compromise. This time it was organised under the auspices of the journal *Pod znamenem marksizma* by the philosophers, who had been called upon by the presidium of the Academy of Sciences to abandon their neutrality in the struggle between the two trends in biology. Mitin attempted to drive a wedge between Lysenko and Present, praising the work of Lysenko, but criticising the "boundless conceit" of Present in trying to fasten his "scholasticism" and "bombast" onto Lysenko's work. Lysenko would have none of it, however much Mitin continued to try to

persuade him to preserve his practical results from the tendency toward the scholastic imposition of philosophical categories on concrete material. Lysenko continued to object and brought forward quotes from Engels to prove that the classics of marxism were on his side. Mitin, however, undercut this line of argument by asserting that there were obsolete ideas even in the classics of marxism, "the holy of holies of our theory."

At the same time, Mitin was not defending the geneticists and he drew them into a rather strained analogy that presented views put forward in the biological debate as parallels to "menshevizing idealism" in the philosophical debate, and to the theories of the "Trotsky-Bukharin-Pashukanis gang" and other such "wreckers" in the political debate. Yudin, for his part, called upon geneticists to clear up the "rubbish and slag" that had accumulated in their science.

Nevertheless, the philosophers held back at condemning the science of genetics and backing Lysenko's theories as the one and only dialectical materialist position in biology. They appealed to both sides to be less intransigent, asking the geneticists to concede the supreme importance of agrobiolgy, and the Lysenkoites to suspend their efforts to suppress genetics. In time Mitin and the rest abandoned all such reserve and came in solidly behind Lysenko.

So it went with Soviet biology. There remained two conflicting theories of heredity, each claiming for itself both scientific validity and philosophical superiority. Lysenko continued to move from strength to strength, while his opponents were hounded, purged, jailed, and shot. Nevertheless, neither the party nor the philosophical leadership had decisively committed itself to Lysenko's theories or to a repudiation of the science of genetics. But it was early days yet.*

* The "Lysenko affair" still had a long way to go. Not until 1948 did Lysenkoism reach its peak. The decisive confrontation of that year resulted in official endorsement of Lysenko's views and corresponding repression of those of the geneticists. Within a few years, however, the struggle resumed again. It was an extremely protracted episode in Soviet history, with complex political, scientific and philosophical issues coming into play and requiring analysis. Quite a number of accounts of the controversy surrounding Lysenko are available.

The most notable are: David Joravsky, *The Lysenko Affair* (Cambridge, Mass., 1970); Zhores Medvedev, *The Rise and Fall of T. D. Lysenko* (New York, 1969); Loren Graham, "Genetics," in *Science and Philosophy in the Soviet Union* (London, 1973); and Dominique Lecourt, *Proletarian Science? The Case of Lysenko* (London, 1977). Among the most interesting articles attempting an analysis of Lysenkoism are: Richard Lewontin and Richard Levins, "The Problem of Lysenkoism," in *The Radicalisation of Science* (ed. H. Rose and S. Rose) (London, 1976), and Robert Young "Getting Started on Lysenkoism," *Radical Science Journal* 6/7. This can be found on www at:

<http://www.shef.ac.uk/uni/academic/N-Q/psysc/staff/rmyoung/papers/getting.html>

My own view of what is required in the way of an analysis of Lysenkoism is that it cannot be understood simply as a story of personal opportunism and political terror, nor as a cautionary tale against the dangers of bureaucratic interference in intellectual life or of ideological distortion of science. These are obviously elements of an analysis, but it is vital to see the emergence of Lysenkoism as no historical accident, as no imposition of alien elements (philosophy and politics) upon science.

It was a movement reflecting the temper of the times and groping with very real problems. It must be understood against the background of the tasks of political and cultural revolution, the drive to create a socialist intelligentsia, the push to transform every sphere of life and thought (including science and agriculture) in a new social order. Such tasks naturally involved struggling with such issues as the ideological character of science, hereditarianism versus environmentalism, determinism versus voluntarism, the relationship of philosophy to biology, the relationship of biology to agronomy, and so on.

What went wrong was that the proper procedures for coming to terms with such complex issues were short-circuited by grasping for easy slogans and simplistic solutions and imposing them by administrative fiat. It was a tragedy parallel to other tragedies in Soviet life at this time, rooted in the same tensions opening in the yawning gap between the monumentally advanced tasks undertaken in Soviet political life and the persisting cultural underdevelopment of Soviet society ... and this in conditions of hostile encirclement.

The sorts of conclusions to be drawn are: that there are no shortcuts in dealing with such intricate issues and that a certain cultural level is required to deal with them competently. The sorts of conclusions not to be drawn are: that science must be kept free from philosophy and from politics, that science is in essence non-ideological and that ideology is necessarily antithetical to science. Science is inextricably tied up with philosophy, politics and ideology.

References for this text (pages 217 to 228) can be found in the end of chapter notes pages 241 to 243 of

[Marxism and the Philosophy of Science: A Critical History](#) by [Helena Sheehan](#)

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[The Fate of Marxism](#) (introduction to 1993 edition)

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