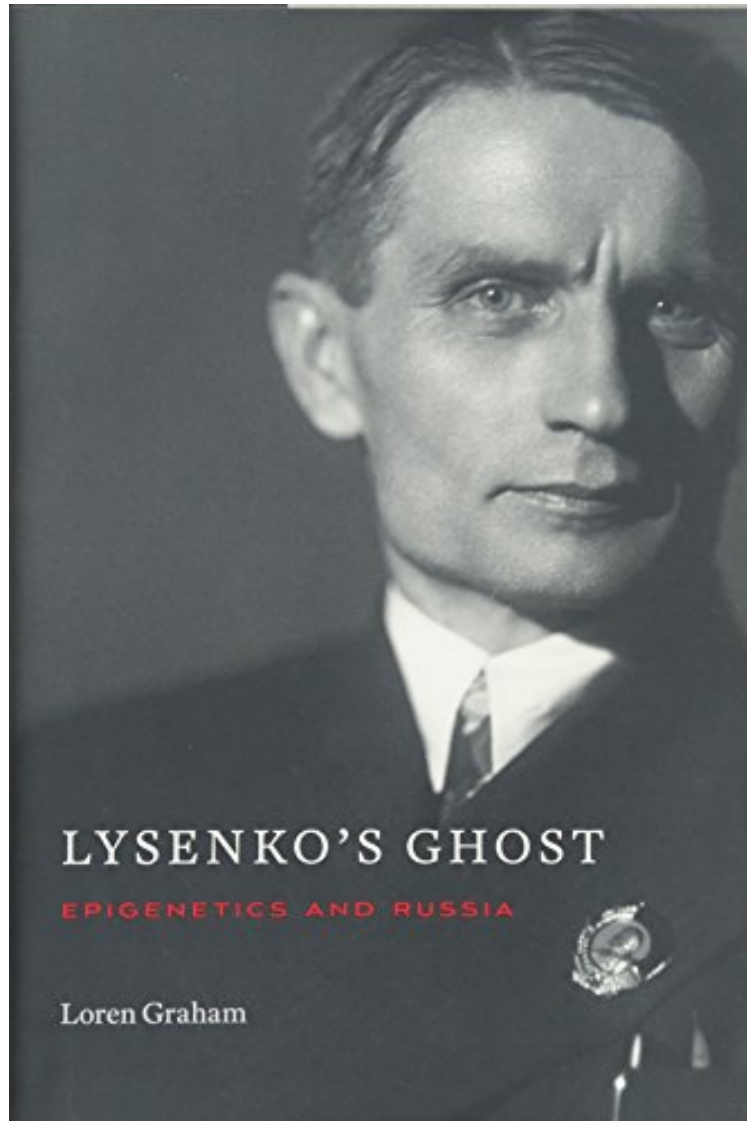


(Free and download) Lysenko's Ghost: Epigenetics and Russia

Lysenko's Ghost: Epigenetics and Russia

Loren Graham

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Loren Graham : Lysenko's Ghost: Epigenetics and Russia before purchasing it in order to gage whether or not it would be worth my time, and all praised Lysenko's Ghost: Epigenetics and Russia:

8 of 8 people found the following review helpful. Exceptionally Good Work on Lysenko and the Soviet AcademyBy Dr. Terrence McGartyGraham has written a wonderful book on Lysenko and the Russian School of Genetics during the Stalin era. Lysenko viewed inheritance in the sense that certain characteristics could be handed down in generations based upon environmental factors experienced by parents. That is the change in a genetic makeup was not solely due to genetic changes per se. He could turn summer wheat to winter wheat by getting it used to a change in

weather. Thus he did not need a genetic alteration but an environmental alteration was sufficient. In a sense the concept did play into the hands of the Marxist reasoning. Graham blends the understanding of epigenetic changes that are currently being understood with the ideas of Lysenko and asks if this new understanding then justifies Lysenko's ideas. On the other hand, Graham details Lysenko's way of dealing with his academic adversaries often resulting in their imprisonment and demise. The current understanding of gene expression and thus phenotype is that genes can be turned on and off by such epigenetic factors as methylation. Methyl groups bind to the nucleotides and also suppress expression directly by blocking the gene or indirectly by blocking transcription factors. This is somatic epigenetics. Germ line epigenetics, parent to child has also been observed. Namely effects on the parent causing epigenetic changes can be handed down to the child, where it was assumed that the methylation of certain bases was eliminated but somehow they can be preserved. Thus, in a simplistic sense, an environmental change imprinting the parent can imprint the offspring. This may or may not be consistent in a broad sense with Lysenko but the author discusses it in some detail. Graham's discussion is limited as one would expect in a short book of this type but he does explain some of the issues well including the event of the "Dutch Winter", an epigenetic benchmark. Graham has a wonderful discussion of his opportunistic meeting with Lysenko at a lunch table in the Russian Academy, and the brief attempt to elicit some explanation from Lysenko. Lysenko was as one would expect defensive since this occurred after he was taken down from his perch yet retained his academic credentials. This discussion is quintessential east meets west based upon my personal experiences in Russia when first meeting some notable. It was clear from Graham's description that Lysenko was still wary especially since Graham had been critical of him in Graham's prior writings. Graham also presents a clear and coherent discussion of the players in this tragedy, the geneticists following the true path and how Lysenko and his actions resulted in their fall. The only point that would have been useful to explore would be the need by the Marxist theorists to have a Lysenko position versus a Darwinian one. I had seen this battle with the probabilists. Marxist theory is deterministic and probability is its enemy. Yet many probabilists managed to work and prosper. Individuals like Gnedenko, Kolmogorov, Stratonovich, Markov and others developed the basis for stochastic processes that we see used in fields as broad as finance with the Black-Scholes theorem in options trading, a thought anathema to the Marxists. Graham does provide some insight but it would be worthwhile to have a more in depth discussion of this potential conflict. Overall the book is an excellent addition to understanding both the Russian Academy and its functioning, the Stalinist management of the overall society, and a petri dish model of Academic infighting. It is very worthwhile for those seeking to understand both Russia as well as the politics of Science, albeit in a different vein.

1 of 1 people found the following review helpful. A specter is haunting biology in Russia
By Art Shapiro
Trofim Denisovich Lysenko is long dead, but recent developments in epigenetic inheritance have been seized upon, mainly in Russia, to raise him --and his ideas -- from the grave. Nationalist (and often anti-Semitic) forces, seemingly with official encouragement in Putin's Russia, have initiated a serious campaign to "rehabilitate" Lysenko as both a true patriot and a great scientist. The traditional "Slavophile vs. Westernizer" conflict going back to the time of Catherine the Great is alive and well, and in the contemporary Slavophile narrative Lysenko is portrayed as victimized by toadies who genuflected to Western opinion after the fall of the Soviet Union. As part of the same narrative, elements of Russian Orthodoxy have begun embracing creationism and rejecting Darwinism as merely an element of Godless Soviet materialism--echoing the position of Muslim creationists in Turkey who successfully turned evolution into a nationalistic political "wedge issue." Anyone who thinks the conflation of science and ideology is merely an historic issue should read this disturbing book.

0 of 0 people found the following review helpful. Lysenko won't stay dead and buried
By A. Simon
This was a surprisingly thin book (144 pages, without the notes and references), but a good one nonetheless and, as such, a quick read. I just wish that he had gone into more detail regarding the attacks on Vavilov and on Lysenko's machinations to obtain power. But then, that has been done in Medvedev's *The Rise and Fall of T. D. Lysenko*. Incidentally, by sheer luck, Graham was able to meet and briefly interview Lysenko, after many failed attempts in his previous trips, which he relates in the book. Graham is a professional historian rather than a dilettante. The main purpose of this book was to examine Lysenko's work, and the person itself, with the new science of epigenetics in order to determine if the new findings rehabilitate that evil son of a--. It doesn't. Lysenko's work, he concludes, was sloppy in the extreme and his rise to power was simply by appealing to Stalin to liquidate "enemies of the people" like Vavilov and many other legitimate geneticists. Additionally, many of his ideas did not originate with him. Anyway, simply put, Lysenko was a disaster for Russian science. Just as bad, as Graham notes, neo-Stalinists are using epigenetics in order to rehabilitate Lysenko's image. One little item that Graham mentions that surprised me is that in some places the Russian Orthodox Church is promoting Creationism. I always thought it was an embarrassing American phenomenon.

The Soviet agronomist Trofim Lysenko became one of the most notorious figures in twentieth-century science after his genetic theories were discredited decades ago. Yet some scientists, even in the West, now claim that discoveries in the field of epigenetics prove that he was right after all. Seeking to get to the bottom of Lysenko's rehabilitation in certain Russian scientific circles, Loren Graham reopens the case, granting his theories an impartial hearing to determine whether new developments in molecular biology validate his claims. In the 1930s Lysenko advanced a

theory of nutrients to explain plant development, basing his insights on experiments which, he claimed, showed one could manipulate environmental conditions such as temperature to convert a winter wheat variety into a spring variety. He considered the inheritance of acquired characteristics which he called the internalization of environmental conditions the primary mechanism of heredity. Although his methods were slipshod and his results were never duplicated, his ideas fell on fertile ground during a time of widespread famine in the Soviet Union. Recently, a hypothesis called epigenetic transgenerational inheritance has suggested that acquired characteristics may indeed occasionally be passed on to offspring. Some biologists dispute the evidence for this hypothesis. Loren Graham examines these arguments, both in Russia and the West, and shows how, in Russia, political currents are particularly significant in affecting the debates.

The ways that politics, religion, cultural norms, and ideologies of all kinds distort science is at the heart of Lysenko's Ghost. Those ideologies can alter our interpretation of facts and reshape our understanding of natural events. (Maggie Koerth-Baker Technology 2016-03-01) Graham has delivered an account of one of the most infamous and important, yet least-known episodes in twentieth-century science one on which he is the leading scholar. (Edward O. Wilson) This book adds valuable new insights into the current debates concerning elements of the newly emerging field of epigenetics and its connections to the older debates about the inheritance of acquired characteristics, especially in the context of Russia and the theories of Lysenko. Graham is in command of the materials throughout and in many cases he is one of the few who knows the materials at hand. (Everett Mendelsohn, Harvard University) A thoughtful, historically grounded, and engaging commentary on current Russian perspectives on Lysenko and his legacy in the context of recent developments in epigenetics and Russian politics and culture. (Daniel Todes, Johns Hopkins University) Graham's book is a timely and important antidote to the idea that everything that is not mainstream heredity is Lysenkoism. (Maurizio Meloni Science 2016-04-22) [Graham's] survey of the terrifying milieu in which Lysenko thrived includes a discussion of the eugenics movement in the Soviet Union, and the short book thus encompasses two major types of threat to the integrity of scientific inquiry: institutional interference from without and political infection from within. The latter threat, in particular, is ever present. Graham's survey of Lysenkoism and eugenics in Soviet Russia contains important lessons about threats to the health of science. (Nicholas Wade Wall Street Journal 2016-06-17) Graham offers a sweeping history of the concept of inheritance of acquired characteristics as it shaped, and was shaped by, philosophy and politics in the 19th and 20th century. The book highlights how the scientific process can be imperiled when political objectives here, Lysenko's goals for demonstrating that environmental conditions can induce heritable biological change are prioritized over experimental design and data analysis. (D. P. Genereux Choice 2016-11-01) About the Author Loren Graham is Professor Emeritus of the History of Science at the Massachusetts Institute of Technology.