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Lysenkoism stands as the primary example of political suppression of science in a modern state. It sent a shock through international science when the August 1948 congress of the Lenin Academy of Agricultural Science (VASKhNIL) concluded that standard genetic science was inadequate and unwanted in the Soviet Union. Teaching and research on biological heredity was for the future to be based on the obscure doctrines of "Agrobiology" formulated by the agronomist Trofim D. Lysenko. Toward the end of the meeting the president of VASKhNIL, Lysenko, announced that these changes had already been approved from above.

William de Jong-Lambert has written a very stimulating paper on the reaction of three leading American geneticists who took an active part in the public debates following this clash between Soviet politics and international science. All three saw science as a bulwark against the totalitarian regimes that threatened to crush liberal democracy in the middle of the twentieth century, Nazi Germany and Communist Russia in particular. And they suggested that similar threats to science were present also in the United States. However, their comparison of Lysenkoism in the Soviet Union to the creationist rejection of evolution in the United States was not popular. It met with general skepticism about scientific knowledge and accusations of intellectual arrogance and elitism. De Jong-Lambert's vivid account of internal discussions among the three illuminates the dilemmas of science caught up in cultural and political struggles.

Hermann Muller was the most aggressive critic among the three. In 1933 he had gone to work as a scientist in the Soviet Union, full of hopes of contributing to the new socialist society. But by 1936 political prosecution and the growing Lysenkoist influence forced him to flee. And by the end of World War II, like so many Western socialist intellectuals

of his generation, he had become staunch anti-communist. In 1946 Muller was awarded the second ever Nobel prize within the area of genetics. (The first went to his onetime and not very beloved boss, T.H. Morgan, in 1934.)

Muller's debate with George Bernard Shaw in *the Saturday Review of Literature* from December 1948 to April 1949¹ well illustrates Muller's dilemma as a socialist (former Soviet sympathizer) and a scientist. His opponent, Shaw, was a socialist with continuing sympathy for the social experiment of the Soviet Union. Shaw also shared Lysenko's belief in Lamarckism, the inheritance of acquired characters. Muller sharply attacked Shaw for such scientific ignorance. According to Muller Lysenko's claims to have shaped the heredity of cultivated plants and animals by manipulation of the environment was completely contrary to current biology and utterly lacking in experimental support. However, the reaction of the readership was in favor of Shaw. The readers of this highbrow literary magazine perceived Muller as condescending and personal in his attacks, unwilling to enter a serious debate: He simply dismissed Shaw's arguments because he was not a scientist. In the left wing press the anti-Muller reaction was even stronger.

It remains a riddle how a regime that prided itself on conducting politics in the spirit of science could so blatantly shoot its own foot by rejecting that same science. The political willfulness of the political leadership headed by Joseph Stalin is hardly a sufficient explanation.² His errant decision was only possible with a scientific establishment whose judgment had been distorted by decades of politics based on a misleading ideology of science. The so-called 'practice criterion of truth' meant that economic and social success (in the short run, and politically assessed) was the basic test for truth of theories. By 1948 such primitive pragmatism had seriously eroded independent scientific judgment on questions of political import. In the Soviet Union the tradition of public, free and open scientific debate, including the politically sensitive issues of knowledge, had degenerated to ritualized exchanges narrowly framed by political interests. The autonomy of science had been severely curtailed.³

¹ H.J. Muller, "The Destruction of Science in the USSR," *Saturday Review of Literature*, 4 December, 1948, 13-15, 63-65. H.J. Muller, "Back to Barbarism Scientifically," *Saturday Review of Literature*, 11 December 1948, 8-10. G.B. Shaw, "Behind the Lysenko Controversy," *Saturday Review of Literature*, 16 April 1949, 10-11. H.J. Muller, "It Still Isn't a Science. A Reply to George Bernard Shaw," *Saturday Review of Literature*, April 16, 1949, 11-12, 61.

² The classical example of the Cold War view of Lysenkoism is David Joravsky's outstanding historical account, *The Lysenko Affair*. Cambridge, Mass.: Harvard University Press, 1970.

³ See, for instance, Nikolai Krementsov, *Stalinist Science*. Princeton, N.J.: Princeton University Press, 1997. And Alexei Kojevnikov, *Stalin's Great Science*, London: Imperial College Press, 2004.

A large literature exists on Lysenkoism in the Soviet Union. The impact and reactions to Lysenkoism in the rest of the world has received much less attention. But interest is growing. Such studies are needed discern more clearly what we can learn from this episode in the history of science - on how the institutional relations of politics and science can best be organized for the benefit of a liberal democratic society.

The strength of de Jong-Lambert's paper lies in its collective portrait of the three distinguished geneticists, representatives of a generation that took 'the social responsibility of science' very seriously. In their view, science should serve the common good of society, not only through economic and technological usefulness, but also by adherence to truth in the service of public enlightenment. For that purpose science needed autonomy from political and economic special interests. Ideally scientific judgements should be 'value-free', i.e., subject as far as possible only to epistemic and not to external social values. This was not autonomy intended to isolate science from the rest of society, but on the contrary to protect scientists from reprisals when they explained in public what they thought established knowledge implied with respect to current political issues. The autonomy of science was a core element in democratic freedom of expression.

For Muller and Dunn, left wing political activism interfered severely with their scientific careers. Muller is depicted as the troubled idealist who settled for a while in the Soviet Union and ended up disillusioned with utopian socialism, Dunn as the more low-voiced idealist with a humanist heart whose attempts at international reconciliation were not appreciated. Dobzhansky was less involved in politics and less affected. He left Soviet Russia in the 1920s to pursue his further scientific training, but decided not to return when political repression tightened around 1930. In the words of de Jong-Lambert, Dobzhansky refused "to allow his personal and political concerns to distract him from the pursuits of his research interests..." (117).

The events of 1948-1949 are centre stage, with some excursions into the earlier and later life of the three main subjects. The picture drawn by de Jong-Lambert has the character of a snapshot, or a series of snapshots, rather than a comprehensive historical account. It is fresh and stimulating precisely because it is restrictive in imposing interpretations derived from broader social and temporal perspectives. But, of course, a reader, especially an academic one, is irresistibly drawn to do just this.

For one thing, it is remarkable how much these geneticists of 1948 differed from the student revolutionaries of 1968. To them science no longer represented the hope of social progress and welfare for all. Science had become a source of destructive technologies, responsible for weapons of mass destruction and polluting industry. In 2013 this somber picture still dominates. And the pessimistic outlook has been cemented by a discourse where the traditional distinction between science and technology is often dismissed in favor of a broad concept of techno-science. This makes it harder to distinguish between the knowledge itself and the consequences it produces. Since the 1960s the phrase 'science and development' has gradually taken the place of 'science' in discussions on the

politics of science. This change in language has stimulated a radical transformation in the view of science, in the way it is “constructed.”⁴

The change in public discourse on science and society between 1948 and 1968 was reflected by a turnabout in the attitude to ‘politicization.’ In 1948 the ‘politicization’ of science was something to be resisted in the name of freedom and democracy. In 1968 established science was seen as regrettably subservient to a reactionary capitalist political system. The challenge of the young generation was to reveal the already existing politicization, force science out of its academic ivory-tower, and make it serve the right political aims. While the politicization of science was a wrong in 1948, it had become right in 1968. In 2013, one may suggest, the general attitude is that the politicization of science is neither right nor wrong, but simply inevitable. Science and the social order are said to be “co-produced.”⁵

To properly understand the international Cold War debates about Lysenkoism, attention to the internal Soviet debates in the 1920s and 1930s is needed. De Jong-Lambert touches briefly on the tragic trajectory of Nikolai Vavilov’s scientific life. As a plant breeder and geneticist and the central entrepreneur in Soviet agricultural science, he was a patron of Lysenko’s early career, but later became the heroic opponent and victim of Lysenkoism, the martyr of true genetics.

Sensitivity to the scientific issues is necessary to understand the changing relationship between Vavilov and Lysenko. De Jong-Lambert’s account neglects the difference between plant physiology and genetics. However, Lysenko first made his scientific reputation, nationally as well as internationally, with experiments in the developmental physiology of plants, cereals in particular, from the late 1920s to the early 1930s. His problematic ideas on plant breeding and genetics were developed and pushed from the mid-1930s.

Vavilov praised Lysenko’s plant physiology, not his genetics. For Vavilov, vernalization (as a physiological process) was a useful instrument in plant breeding, an instrument to make different strains flower simultaneously and thus facilitating wanted hybridization. Vavilov was from the start critical of Lysenko’s theories on genetics and plant breeding, but hesitant about public criticism of them. Vavilov continued to hope that in time proper experimental tests would convince even the political leadership that Lysenko’s ideas were untenable. But the terror of 1936-1937 soon cut this hope short.

⁴ See, for instance, Michael Gibbons et al., *The New Production of Knowledge. The Dynamics of Science and Research in Contemporary Societies*. London: SAGE Publications, 1994.

⁵ See, for instance, Sheila Jasanoff (ed.), *States of Knowledge. The Co-Production of Science and Social Order*. New York: Routledge, 2004.

Thus Lysenko's astonishing career could not have gotten off the ground without his small but genuine scientific contributions in plant physiology. Neglect of Lysenko's very modest, but still internationally respected, scientific contributions, makes Lysenkoism appear more unscientific and irrational than it was. In other words, superficial treatment of the scientific issues paves the way for a misleading account of the complex interaction between science and politics.⁶

There has been much criticism of the so-called ideal of 'value-free science' in recent decades. Originating in the age of the Cold War, it is said to have alienated science from society, producing a false idea of scientific 'objectivity,' and thus prevented adequate political governing of science.⁷ The behavior of Muller, Dobzhansky, and Dunn does not fit this picture. In tune with *The Bulletin of Atomic Scientists*, they believed in the 'social responsibility of science,' i.e., a duty to explain to the public the implications of their special scientific knowledge with respect to salient political issues. Today's criticism of the ideal of 'value-free' science is preoccupied with general sociological and philosophical theories and pays little attention to the experience and ideas of the scientists most directly involved in the Cold War politics of science. William de Jong-Lambert's paper on Muller, Dunn, and Dobzhansky ought to stimulate historically more realistic and discerning discussion on the role of social values in science.⁸

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⁶ For a further development of this argument see Nils Roll-Hansen: *The Lysenko Effect. The Politics of Science*, Amherst, NY: Humanity Books, 2005; "The Lysenko Effect: Undermining the Autonomy of Science", *Endeavour* 29 (no 4 December 2005): 143-147.

⁷ See, for instance: Harold Kincaid, John Dupré, and Alison Wylie (eds.) (2007) *Value-Free Science: Ideals and Illusions*, Oxford University Press, 2007; Philip Kitcher (2011) *Science in a Democratic Society*. Amherst, New York: Prometheus Books. (2003). Heather Douglas in *Science, Policy and the Value-Free Ideal* (, Pittsburgh Pa: Pittsburgh University Press; 2009) is more nuanced. She acknowledges that Cold-war philosophers of science were quite sophisticated with respect to the impact of social values on science, especially on its applied aspects. But the historical experiences of involved scientists from the 1930s into the Cold War period are not considered.

⁸ Interesting in this respect is Janet Kourany, "Integrating the Ethical into Scientific Rationality." In Martin Carrier, and Alfred Nordmann (eds.) (2011), *Science in the Context of Application*. Springer: Boston Studies in the Philosophy of Science, 2011, 371-386. Kourany also discusses Lysenkoism.

include the formation of classical genetics 1890-1930, and the importance of distinguishing basic and applied research in the politics of science.

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