ESSAYS ON SCIENCE AND SOCIETY

From the Modern Synthesis to Lysenkoism, and Back?

Uwe Hossfeld* and Lennart Olsson

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For the sake of his career, Schneider adopted Lysenkoism, but secretly remained interested in the modern evolutionary synthesis.

After the end of the Second World War, German scientists wanted to separate science from ideology. They hoped for a new beginning without misanthropic political doctrines, but in East Germany [German Democratic Republic (GDR)], this hope was thwarted. There it soon became clear that the communists would decide in which direction scientific research would go, just as the national socialists had done before. This was true especially of biology and philosophy. In the 1950s and 1960s, the attitude of a scientist to the mode of thought encapsulated by the theory of evolution known as Lysenkoism and to the "the socialist achievements of the Soviet Union" was used as a measure of his or her political stance (*1*). It was within the doctrine of Lysenkoism that the self-styled developmental biologist, Georg Schneider, elaborated his career in the GDR.

The Ukrainian agronomist Trofim D. Lysenko (1898–1976) became well known in the 1930s through his research into Jarowization (the cold treatment of seed to stimulate germination), which meant grain could be sown in the spring instead of the previous fall. This made it theoretically possible to extend land use within the Soviet Union for agriculture. Building on this early success, Lysenko developed his anti-Mendelian theories over the next few decades. His idea—that acquired characters could be inherited—was totally at odds with what was known about genetics at this time. This notion was first known as "Michurin biology" [Ivan D. Michurin (1855–1935) was an early proponent of acquired inheritance, gaining his ideas from fruit-tree selection studies] and later as "creative Darwinism."

By the 1930s, Lysenko had gained Joseph Stalin's support, which helped him to become president of the Lenin Academy for Agricultural Sciences (VASKhNIL) in 1938 and director of the Department of Genetics at the USSR Academy of Science in 1940. Because of Lysenko's political power, Soviet geneticists abstained from criticizing his theories at their conferences in Moscow in 1936 and 1939. Finally, after the VASKhNIL conference in August 1948 (during times of general repression, denunciation, imprisonment, and murder), the principles of classical genetics were suppressed in the Soviet Union. Soviet genetics, which had until then been of the highest international standards and was led by researchers including S. S. Cetverikov, T. Dobzhansky, G. F. Gauze, N. V. Timoféeff-Ressovsky, and N. I. Vavilov, was given a blow from which it would take a long time to recover. Lysenko's ideas found their way into textbooks and were taught in schools and universities. There were even attempts to apply his ideas to the evolution of man (e.g., in the ideas of I. I. Prezent).

After Stalin's death in 1953, Lysenko's influence weakened for some time but regained influence under Nikita Khrushchev until the latter was overthrown in 1964. Since the mid-1990s, Russian historians have worked intensely on the Lysenko era (*2*, *3*), but no comprehensive account yet exists in languages other than Russian. It was a fortunate peculiarity of the historical development of the GDR that Lysenkoism never gained much hold and did not do much damage. This is all the more remarkable because, in the 1950s, many school textbooks were full of Lysenko's ideas, and it was almost impossible to give lectures on classical genetics at the universities. However, Lysenkoism did become influential at Jena University. It was here that the Marxist and Lysenkoist, Georg Schneider, having returned from exile in the Soviet Union in 1945, became director of the Ernst Haeckel House (EHH) and professor of theoretical biology. Schneider's political connections with Walter Ulbricht and other important communists enabled him to become an influential figure in East German science, and he held leading positions in the Thuringian Communist Party from July 1945 until April 1946.

Georg Schneider (1909–1970)

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Schneider was born in Saarbrücken, studied in Jena between 1928 and 1931, and became a schoolteacher. As a member of the German Communist Party (KPD) he had difficulties finding a job and in 1931 emigrated to the Soviet Union. In 1936, after working as a teacher in Moscow schools for a few years, another German émigré and communist, Julius Schaxel, then doing research in developmental biology at the Institute for Experimental Morphogenesis, hired him. Schaxel and Schneider later moved to the famous Severtsov Institute for Evolutionary Morphology at the Academy of Sciences of the USSR in Moscow.

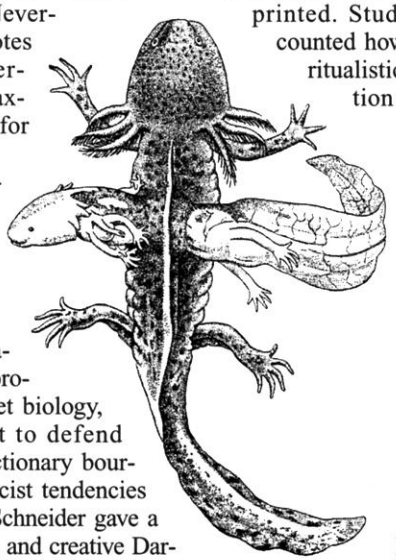
In October 1945, Schneider earned a Ph.D. in Jena with a thesis called The Role of the Nervous System in the Regeneration of the Limbs in the Axolotl. The thesis apparently no longer exists but is believed to consist of work carried out in collaboration with Schaxel in Moscow. Only a few days after receiving his Ph.D. degree, Schneider started the "democracy courses" at the university in his function as secretary of the local KPD. After 9 months as a teacher in Berlin at the Karl-Marx-Parteihochschule, Schneider applied for the position as director of the EHH. Doubts were raised about his qualifications, and he was at first given a temporary post. In 1947 Schneider tried to obtain the "Habilitation," a title normally required to qualify for professorships in Germany. His Habilitation thesis received mixed, and some very negative, reviews so he withdrew his proposal. Despite this failure, Schneider became a tenured professor of theoretical biology in Jena in 1951. As with the Ph.D. thesis, there were doubts as to

U. Hossfeld is in the Department of the History of Medicine, Science, and Technology, Ernst Haeckel House, Friedrich-Schiller-Universität Jena, D-07745 Jena, Germany. L. Olsson is in the Department of Systematic Zoology and Evolutionary Biology, Friedrich-Schiller-Universität Jena, D-07743 Jena, Germany.

*To whom correspondence should be addressed. E-mail: b7houw@nds.rz.uni-jena.de

how much of his thesis was actually his work and how much was Schaxel's (who had died in 1943).

In his research, Schneider attempted to continue the research on ontogenetic determination in Mexican axolotls (*4*, *5*). He aimed to change hereditary characters through environmental influences by using the "Pfropfung" method (see figure, this page), in which whole organs or organ parts were joined to those of an animal of the same or a different species. From reading Schneider's papers, it would appear to have been very difficult for him to reconcile his experimental results with Lysenko's ideas. Nevertheless, in his lecture notes (EHH archive), he interpreted results from his axolotl research as support for Lysenkoism.



Example of an experiment using the Pfropfung technique. Schneider wrote: "...it can be clearly seen that this animal developed rather normally on the back of the other animal. It did not eat anything itself, but received all its nutrients from the Hypoboint (the host animal).... This animal lived for more than 2.5 years." (*10*).

Schneider used his position as director of the EHH and Professor of theoretical biology to promote Lysenko's teachings as creative Darwinism. He acted as a propagandist for an allegedly progressive, antifascist Soviet biology, which it was important to defend against a supposedly reactionary bourgeois genetics with its racist tendencies (*1*). From 1950 onward, Schneider gave a lecture series on Michurin and creative Darwinism, and he led colloquia on related topics. His book, *The Theory of Evolution: The Fundamental Problem of Modern Biology*, was published in 1950 and by 1952 was in its third edition. The book offers many examples of his rigid Lysenkoism: "The essence of the teachings of Michurin and Lysenko is that their theories and methods are no dogmas, no stiff system, but quite the opposite. They promote further developments.... They represent the most advanced in today's biology.... Also the teachings of Michurin and Lysenko are the further development of the natural science aspect of Marxism.... Therefore let us boldly apply the theories and methods of Michurin and Lysenko!" (*6*).

Schneider was also very active outside academia, giving lectures to members of organizations such as the Society for German-Soviet Friendship. He thereby promoted Lysenko's ideas and their use in agricultural practice, and he was given the highest awards for these activities. His many commitments left almost no time for scientific work. One of his initiatives in 1947 was to resurrect and act as editor of the popular science journal *Urania*, which had been created in 1924 by Schaxel and forbidden in 1933 by the national socialists (*7*). After Stalin's death, Lysenko's doctrine lost any influence it might have held in the GDR, the scientific debate had been won by the Darwinists, and Schneider's largely unsuccessful agrobiological suggestions were no longer of any interest.

An important milestone in establishing the modern evolutionary synthesis in the Soviet Union was the book *Faktory evoljucii* (*Factors of Evolution*), published in 1946 by Ivan I. Schmalhausen (*8*). Long before Theodosius Dobzhansky published an English translation in 1949, Schneider had translated the book into German in 1946 and had visited Schmalhausen's institute, but his German translation was never printed. Student witnesses later recounted how Schneider performed a ritualistic burning of the translation in the courtyard of the EHH in the winter semester of 1949–50. In 1948, Schmalhausen had been denounced as "leader of the Mendelist-Morganists" and lost his professorship at Moscow University, as well as his Academy of Science institute directorship. Apparently this denunciation made Schneider realize that Schmalhausen was "an incorrigible enemy of the progressive teachings of Lysenko," and a "formal geneticist."

Whatever he burnt in 1949–50 was not Schneider's translation of Schmalhausen. He kept it and took it with him to Moscow in 1959 (*1*) when his career took a new turn as he became a diplomat in charge of cultural affairs at the embassy of the GDR. He must have returned the manuscript to the EHH, where one of us (U.H.) recently found it in the library. Apparently Schneider was sufficiently impressed by the ideas that became part of the modern evolutionary synthesis to preserve his Schmalhausen translation, but for the sake of his career prospects, publicly he was a Lysenkoist.

Many leading researchers in the GDR resisted Lysenko's pseudoscientific ideas. Research in classical genetics continued at the institutes run by the Academy of Sciences and Agriculture. At Gatersleben, Hans Stubbe played a leading role. Under his leadership, a large-scale (in terms of resources and personnel) experimental research program was conducted between 1949 and 1960 in which irrefutable, reproducible results in support of Mendelian genetics were produced. Stubbe and coworkers also showed that Lysenko and his followers often worked with contaminated material; used uncritical, lax, and careless experimental procedures; and misused the terminology of dialectic-historical materialism. Conscious manipulation of experimental results to bring them into line with expected results was also usual, as was any activity against scientific enemies.

In addition to Stubbe, Hermann Kuckuck (director of the Erwin Baur Institute for Plant Breeding in Müncheberg) was an ardent early critic of Lysenko. The publication of his *Lehrbuch der Pflanzenzüchtung* in 1949 was canceled by the publisher in the GDR because a chapter on Michurin biology was missing. However, the book was published in west Germany 1 year later. In his lectures and papers, Kuckuck criticized the Lysenkoists for mixing science and politics, and he pointed out the scientific weaknesses of their doctrine. Kuckuck left his institute and moved to West Berlin in 1950. Hans Nachtsheim was forced to leave his position at the Humboldt University, after having resisted Lysenkoism, and moved to West Berlin; Wolfdietrich Eichler was suspended from his academic position in 1954 for the same reason (*1*, *9*).

Georg Schneider gained no scientific recognition: His work in evolutionary biology had no influence on the further development of biology in the GDR, where most biologists avoided the Lysenko doctrines and were able to separate science from ideology. On returning to Jena in 1962, Schneider resumed teaching theoretical biology until in 1970, when drunk, he drove his car into an armored vehicle belonging to the Red Army.

References and Notes

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11. This essay is adapted from one published in the fall 2001 issue of *Axolotl News*.

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