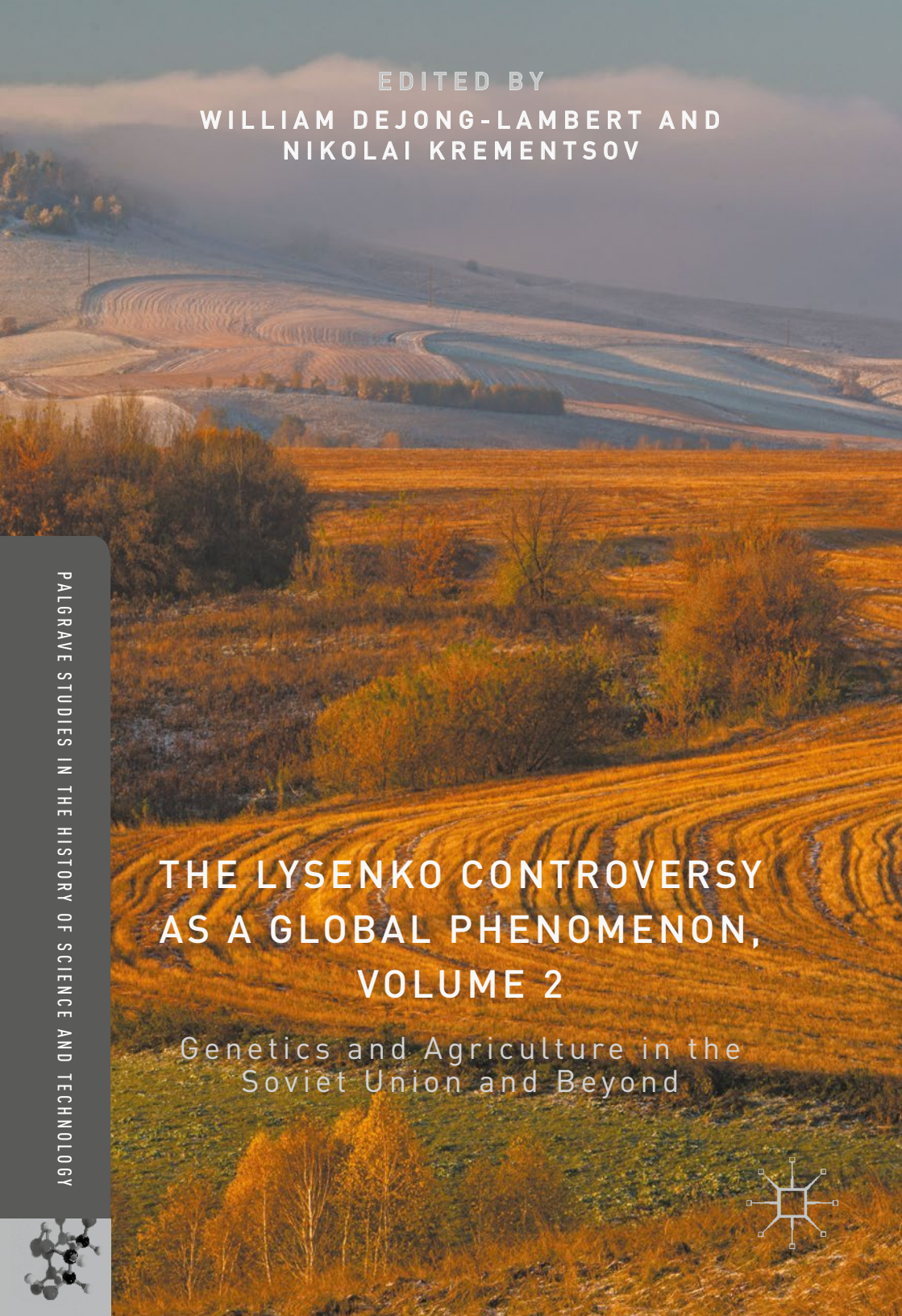
EDITED BY
WILLIAM DEJONG-LAMBERT AND
NIKOLAI KREMENTSOV
PALGRAVE STUDIES IN THE HISTORY OF SCIENCE AND TECHNOLOGY
THE LYSENKO CONTROVERSY AS A GLOBAL PHENOMENON, VOLUME 2
Genetics and Agriculture in the Soviet Union and Beyond

Palgrave Studies in the History of Science and Technology

Series Editors

James Rodger Fleming
Colby College
Waterville, Maine, USA

Roger D. Launius
Smithsonian Institution
National Air and Space Museum
Washington, D.C., USA

Aims of the Series

Designed to bridge the gap between the history of science and the history of technology, this series publishes the best new work by promising and accomplished authors in both areas. In particular, it offers historical perspectives on issues of current and ongoing concern, provides international and global perspectives on scientific issues, and encourages productive communication between historians and practicing scientists.

More information about this series at
http://www.springer.com/series/14581

William deJong-Lambert • Nikolai Krementsov
Editors

The Lysenko Controversy as a Global Phenomenon, Volume 2

Genetics and Agriculture in the Soviet Union and Beyond

palgrave
macmillan

Editors
William deJong-Lambert
Bronx Community College
City University of New York
Bronx, New York, USA

Nikolai Krementsov
University of Toronto
Toronto, Ontario, Canada

Palgrave Studies in the History of Science and Technology
ISBN 978-3-319-39178-6 ISBN 978-3-319-39179-3 (eBook)
DOI 10.1007/978-3-319-39179-3

Library of Congress Control Number: 2016947063

Printed on acid-free paper

This Palgrave Macmillan imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface, Vol. 2

In the second volume of *Lysenkoism as a Global Phenomenon* our authors focus on Lysenko's scientific and cultural impact outside of the Soviet Union. We begin in Hungary with "Opportunism and enforcement: Hungarian reception of Michurin biology in the Cold War period." The authors chronicle the rise and fall of T.D. Lysenko in Hungary according to how his theories were received prior to the Cold War, the reaction and counter-reaction of Hungarian biologists from 1948 to 1956, and how Lysenko ultimately undermined his own credibility among Hungarian biologists.

Next we examine what happens in Italy during these same years with "Lysenko in Bellagio: The 'Lysenko Controversy' and the struggle for authority of Italian geneticists, 1948–1956." Here the author shows how Italian geneticists instrumentalized the Lysenko controversy to consolidate control of biological research in Italy, following the Ninth International Genetics Congress in Bellagio, Italy, in 1953. We return to the Communist Bloc in "The National Pattern of Lysenkoism in Romania," where we learn of how the national affinity for French science and culture influenced Romanian geneticists to interpret Lysenko's theories as neo-Lamarckist, extending their currency far longer than was the case in other Soviet-allied states.

Our next chapter, "H.J. Muller and J.B.S. Haldane: Eugenics and Lysenkoism," examines the complicated relationship between eugenics and Lysenkoism in the USA and Great Britain, in terms of the relationship between two of the most important figures in history of the evolutionary synthesis of genetics and Darwinism. Muller was an advocate of eugenics and Haldane was a skeptic, and Muller's attempt to convince Stalin of his

eugenics plan helped smooth the way for Lysenko's ascent. Muller later emerged as one of Lysenko's most prominent critics, while Haldane was portrayed as his most important defender. The author analyzes the relationship between Muller and Haldane vis-à-vis eugenics and Lysenko to illustrate the challenges of geneticists negotiating the bio-political complexities from the interwar period into the Cold War.

This same theme appears in "Why did Japanese geneticists discuss Lysenko's biology scientifically?" where the author considers their thwarted interest in studying Lysenko's theories after World War II. Though Japanese biologists had many reasons to be interested in following up on Lysenko's claims, the US mandate in their defeated nation made such research impossible. Along similar lines, "Dialectics Denied: Muller, Lysenko, and the Fate of Chromosome Studies in Soviet Genetics," chronicles the study of chromosomal mutations as a heretofore unrecognized casualty of Lysenkoism. Though this was an area of research that thrived in both the USA and the USSR prior to the Cold War, the geopolitics of Lysenkoism abrogated progress, as biologists on both sides retreated to their respective foci on phenotype and genotype.

Our final two chapters, "Lessons from Lysenko" and "Current Attempts to Exonerate 'Lysenkoism' and Their Causes," look to the current status of Lysenko's legacy and ideas. The former argues that the recent rehabilitation of Lamarckism and continued desire to engineer life and steer the course of evolution reflect the aspirations launched by Lysenko decades ago. The opposite point of view appears in the latter chapter, where the author analyzes the current revival of Lysenko's reputation as a pernicious trend rooted in contemporary attitudes towards science and religion in Russia, a quarter century after the end of the Cold War.

Contents

List of Contributors

Luis Campos is Associate Professor of History of Science and Senior Fellow at the Robert Wood Johnson Foundation Center for Health Policy at the University of New Mexico. His scholarship integrates archival discoveries with contemporary fieldwork at the intersection of genetics and society. He is the author of Radium and the Secret of Life (2015), a prehistory of radiation genetics. He is at work on his next book on the history of synthetic biology.

Francesco Cassata is Assistant Professor of Contemporary History at the University of Genoa. He has published several books on the history of eugenics and scientific racism in Italy, on the history of Lysenkoism in Italy, on the Italian geneticist Adriano Buzzati-Traverso and the International Laboratory of Genetics and Biophysics in Naples (1962–1969). He is working on several research projects: the history of EMBO-EMBC-EMBL; the anthropological studies of Dante's bones from 1865 to 1938; the radiogenetic and mutagenesis programme of durum wheat at the Nuclear Energy Research Centre Casaccia (Rome), from the 1950s to the 1980s.

William deJong-Lambert is an Associate Professor of History at the Bronx Community College, City University of New York, and associate faculty of the Center for Science and Society at Columbia University. His publications include, *The Cold War Politics of Genetic Research: An Introduction to the Lysenko Affair* (Springer 2012), a co-edited special issue on Lysenkoism of the *Journal of the History of Biology* (45/3, 2012), and several articles in *Journal of Cold War Studies, Historical Studies in the Natural Sciences, Studies in the History of Biology, East European Politics and Societies* and others, as well as chapters in edited collections. His research has been funded by the National Science Foundation, Fulbright, the American Council for Learned Societies, the American Philosophical Society and other organizations.

Eduard I. Kolchinsky is the director of the S.I. Vavilov Institute for the History of Science and Technology, St. Petersburg, Russia. He has published and edited numerous books on the history of Russian biology, philosophy, and evolutionary thought.

John Marks is Associate Professor in French Studies in the Department of French and Francophone Studies at the University of Nottingham, England. His main research area is contemporary thought and social theory. He is working on a study of discourses of life in post-war French thought on biology.

Miklós Müller Upon his retirement in 2005 as the head of the Laboratory of Biochemical Parasitology at the Rockefeller University, Prof. Müller turned his interests to the history of twentieth-century biology. His studies concern two topics: the life and works of Hungarian theoretical biologist Ervin Bauer (1890–1938) who successively worked in Hungary, Czechoslovakia, Germany and the Soviet Union, and the impact of Soviet distortions of biology (Lysenko and Lepeshinskaya) on biology in Eastern Europe in the 1940s and 1950s.

Cristiana Oghina-Pavie is an Assistant Professor in the Department of History of the University of Angers, France, and member of *Centre de Recherches Historiques de l'Ouest* CERHIO UMR CNRS 6258. Her research interests concern two main themes: history of international relations and life sciences. She studied French-Romanian acculturation of models of nation, state and politics. She works on relationships between horticulture and plant sciences in the nineteenth and twentieth centuries with focus on physiology and heredity. With epistemologists and biologists, she develops interdisciplinary approaches to the effects of breeding on the genetic diversity of cultivated roses.

Gábor Palló is a senior consultant at the Visual Learning Laboratory, Budapest University of Technology and Economics. His fields of research include history of chemistry and physics, twentieth-century history of natural sciences in Hungary, philosophy of science, history of migration of scientists, the relationship between science, politics, and philosophy. Some of his recent publications are *Zsenialitás és korszellem* (Genius and Zeitgeist), (Budapest: Áron Kiadó, 2004); "The Advantage and Disadvantage of Peripheral Ignorance: The Gas Adsorption Controversy," *Ambix* 57, no. 2 (2010), pp. 216–230; "Early impact of quantum physics on chemistry: George Hevesy's work on rare earth elements and Michael Polanyi's absorption theory," *Foundations of Chemistry* 13, no. 1 (2011), pp. 51–61.

Hirofumi Saito holds a PhD from the Tokyo Institute of Technology (Tokyo Tech) since 2008. From 2009 he is working as a research associate at the Tokyo Tech, focusing on the history of Soviet genetics. Since 2010, he has investigated documents of the Archive of the Russian Academy of Sciences. Recently he published two works, which reconsider the process of Lysenko's intervention into the Institute of Genetics in the late 1930s and Lysenko's personal state in his agrobiology school during World War II.

List of illustrations

PART I

The Lysenko Controversy: East and West

Opportunism and Enforcement: Hungarian Reception of Michurinist Biology in the Cold War Period

Gábor Palló and Miklós Müller

Introduction

In this chapter we outline the impact of Lysenkoism upon Hungarian biology according to three topics. First we show that though Lysenko's anti-genetics campaign had a negative impact upon the development of Hungarian genetics in the short term, it stimulated the institutionalization of biology, for the first time, as a scientific discipline. Next we outline five strategies of response—passive resistance, passive acceptance, passive opportunism, active opportunism, and sincere belief. As we show, the fourth option—best exemplified by Imre Törő, head of the Department of Histology and Embryology of the Medical University of Budapest—resulted in the most positive outcome in terms of the long-term development of Hungarian biology. Finally, we show that it was Lysenko

Authors deeply appreciate the help of Magdolna Baráth, Diana Háy and all coworkers of the Archives of the Hungarian Academy of Sciences, Éva Müller, Julia Thurau and Vadim Volubuev in library and archival searches.

G. Palló (✉)
Budapest University of Technology and Economics, Budapest, Hungary

M. Müller
Rockefeller University, New York, NY, USA

W. deJong-Lambert, N. Krementsov (eds.), *The Lysenko Controversy as a Global Phenomenon, Volume 2*, Palgrave Studies in the History of Science and Technology, DOI 10.1007/978-3-319-39179-3_1

himself—thanks to a January 23, 1960 performance at the Hungarian Academy of Sciences—who most contributed to the demise of Lysenkoism in Hungary. The Hungarian case thus complicates the "heroes v. villains" narrative typical of many earlier analyses of the Lysenko controversy: to show the salutary effects of Lysenkoism, that the "bad guys" sometimes did the most good, and that in some cases it was Lysenko himself, rather than his opponents, perceived and otherwise, who most contributed to his downfall.

We divide the timeline of the Hungarian response to Lysenkoism into three stages. During the first stage, occurring from the 1930s up until August 1948, Michurinism was investigated by Hungarian researchers as an interesting new development in plant breeding. The second phase occurred once Lysenko consolidated power over Soviet biology. In this phase Lysenko's theories were mandated as part of Hungary's transition into a Soviet ally, and biologists responded according to the five strategies outlined above. The third stage—counter-reception—began in 1953. This process did ultimately lead to the demise of Lysenkoism in Hungary, the process hastened along thanks to the appearance of its namesake.

Lysenkoism in Hungary

Michurinist biology first appeared in the Hungarian daily press on August 11, 1948, when the Communist Party newspaper, *Szabad Nép* (Free People) published an article entitled "The inheritance of acquired characteristics."[1] The unsigned article reported a major breakthrough in Soviet science, achieved by academician Trofim Denisovich Lysenko. The article was a quick response to Lysenko's report delivered on July 31 at a session of the All-Union Lenin Academy of Agricultural Sciences (VASKhNIL) under the title "On the Situation in the Science of Biology."[2]

The full text of Lysenko's report soon appeared in *Társadalmi Szemle* (Social Review), the theoretical journal of the Hungarian Communist Party, which discussed political and ideological topics in the framework of Marxist-Leninist-Stalinist theory. The translation of Lysenko's text was introduced by the editors, stressing that his report showed the victory of progressive, revolutionary science supported by the Communist Party over apolitical bourgeois science, the victory of dialectic materialism over idealism.[3] This made Michurinist biology a state-supported direction in science.

Support for certain biological theories by the political regime was not entirely unprecedented in Hungary. In previous decades, discrimination based on biological race, eugenics, and related topics of human genetics were enlisted as features of state ideology by the Hungarian government.[4] What was unique in this case is that the new political regime enforced the acceptance of a biological world view, which stood in direct opposition to the Nazi-inspired biological doctrine supported by the interwar government. This shift marked the Hungarian state's transition from being one of the numerous Nazi-oriented dictatorships in Eastern and Central Europe to a member of the Soviet-dominated Communist Bloc.

The Spontaneous Period

Michurinist biology attracted attention in Hungary long before the events of August 1948. Lysenko's ideas of vernalization were discussed in Hungary as early as 1933, when Rudolf Fleischmann, an experienced plant breeder, wrote a short article about it in an agricultural magazine.[5] Fleischmann is considered one of the founders of modern breeding, primarily of corn and wheat, in Hungary. He studied and worked in various countries, but his most important results were achieved in the seed breeding and trading station in Kompolt in northeastern Hungary, where he started to work in 1918. Fleischmann read the bulletin published by the Imperial Agricultural Bureau in Britain on Lysenko's vernalization.[6] He referred to this British publication and not to Lysenko's original papers, about which he probably did not know. His conclusion was that "If we find in it something that helps our domestic agriculture, the introduction of the method will follow by itself…We should add that similar experiments were performed in Hungary by Legány some years ago." Fleischmann was not unique in his interest. The next year, 1934, Ottó Bocskay published a longer report on Lysenko's theory of phasic development, the differentiation between growth and development and some results of vernalization and vegetative hybridization.[7]

Another article on Michurinist methods appeared in the Hungarian press in 1942, when Hungary fought on the side of Nazi Germany against the Soviet Union. It was written by Miklós Horn, also a highly regarded breeder, who produced new varieties of rye, wheat, oat, sunflower, corn, and potato. Unlike Fleischmann, Horn cited Russian sources that he probably read in the original. The enthusiastic title of his 1942 article, "Revolutionary Russian ideas in plant breeding," sounds as if it had been

published six years later, but his text reveals his strong reservations on vernalization and vegetative hybrids.[8] Though the journal that published these articles, *Köztelek* (Tilled Lands), was widely read, it is difficult to ascertain whether these early articles had any practical impact upon Hungarian agricultural research.

Lysenko's work was also described in a widely known textbook on plant breeding written in 1944 by Ödön Villax, a leader of a most important breeding center in Magyaróvár in northwestern Hungary.[9] While Villax included Michurin and Lysenko in this seminal text, he had his doubts and asked his young coworker, Árpád Kiss, to verify some experiments on vegetative hybridization and use of Michurinist mentors. The negative results obtained by Kiss were the first experimental refutation of Michurinist biology in Hungary.[10] Villax left Hungary for the West in 1948.

Evidence of further interest in Lysenko's work comes from Barna Györffy, a leading and pioneering geneticist in Hungary and head of the Research Institute of Genetics. In a report published in 1957, over a decade after the fact, Györffy mentioned that he had started experimental research on Lysenko's vernalization, and attempted to influence inheritance through metabolism in plants in 1945.[11] By the first half of 1948, the agricultural section of the Hungarian Society for Cultural Relations with the Soviet Union arranged a series of lectures on Soviet agronomy, including a lecture given by Ödön Villax on "Michurin and Lysenko."[12] These early examples show clearly that the new ideas of Michurinist biology were noticed by certain experts who did not require any coercion or government interference to take an interest in them. Scientists spotted new ideas in scientific literature, and they attempted to learn and employ them. Michurinist biology in this historical context—prior to the landmark VASKhNIL session of 1948—did not seem anything more than some new ideas related to practical agriculture.

1948

This pattern of reception[13] changed dramatically after August 1948. What had previously been a particular doctrine in agricultural science, of interest only to specialists, became a major political and ideological issue. Michurinist biology was now one of the vehicles of political changes in Hungary. The head of the Communist Party in Hungary, Mátyás Rákosi, dubbed 1948 the "year of turnaround." Historians consider this year as the beginning of real Sovietization, meaning the introduction of the Soviet model in all areas of public life:[14] the features of multiparty

democracy being replaced by one-party rule, and changes being made encompassing all aspects of politics—from central planning of the national economy, to nationalization of private property (including bank accounts and housing), and to central direction of cultural and scientific life. The most powerful leaders of this process—Mátyás Rákosi, Ernő Gerő, Mihály Farkas, and József Révai—spent a long period of time in the Soviet Union as emigrants: they and their close collaborators were called Muscovites, who were perceived to be trusted by the Soviets, including Stalin himself. Communists, who had worked in Hungary before and during the War as members of the prohibited Communist Party, seemed less trustworthy to the Soviet leaders.

The reorganization of science, as part of the governmental structure, began that same year. A new organization, the Hungarian Scientific Council, was set up on September 8 to build up a Soviet-type science system. This system was based on state-financed central planning, division of research and teaching, establishment of new research institutes, political control, screening of personnel, and dialectic materialist philosophy.[15] The Hungarian Scientific Council was led by a Party Collegium consisting of five members headed by Ernő Gerő, the second most important party politician next to Rákosi.[16] The Council had a Natural Science section. Its secretary, Sándor Rajki, was a 25-year-old scientist, who was and remained one of the most faithful advocates of Michurinist biology. The next year however, on Soviet initiative, the Scientific Council was disbanded and its function of directing academic science was transferred to the Hungarian Academy of Sciences.[17] Applied sciences, including agricultural research, were under the supervision of various ministries.

Acceptance of Michurinist Biology

After 1948, news of Michurinist biology spread fast in Hungary. The idea of Soviet science emphasized the move of scientists and science out of their ivory tower. A campaign was started to inform the Hungarian public of the great victories of Soviet science and its superiority to its bourgeois Western counterpart. Introduction of methods of Michurinist biology in agriculture was expected to improve harvests and enable the introduction of new crops, such as cotton, *kok-saghyz* or oranges in Hungary, which were regarded impossible before.[18]

The newspaper of the Party regularly reported on Michurinist biology, Soviet science and scientists, and the scientific relationships between Hungary and the Soviet Union in the context of political news, rather

than special sections covering science. The articles carried headlines such as "Sabanov: 'Hungarian science follows the same path as the Soviet science now'," [19] "Transformation of nature. Professor Glushenko's lecture on Michurin and the new roads of Soviet biology," [20] and "The situation of science radically changed." [21] Such articles also appeared in other newspapers and popular journals with great regularity. Films shown in theaters propagandized the enormous achievements of the Soviet economy, including agriculture. They showed happy workers on the fields lifting huge watermelons, working in cotton fields or holding meetings in rooms where Stalin's portrait was prominently displayed.

The impact was most evident in the realm of popular science. The highly respected *Természettudományi Társulat* (Society of Natural Sciences, established in 1841), which had consistently played a great role in popularizing science, gradually changed its work after 1945, in compliance with political requirements. In November 1948, just after the announcement of Lysenko's victory by the daily press, the Society published the translation of Lysenko's closing remarks at the VASKhNIL session in its popular monthly journal, *Természettudományi Közlöny* (Natural Sciences). [22] What had been an independent society was now transformed into a state-directed propaganda organ. By 1953 it would be drastically reorganized into a centrally controlled new society, *Természet- és Társadalomtudományi Ismeretterjesztő Társulat* (Society for the Dissemination of Scientific and Social Knowledge). [23] A report on popularization activity in this period states that the goal of the Society and its publications was to explain the decisions of the party and the government, to fight against bourgeois ideology, "to help the formation of dialectic materialist world view, and to provide agro-technical education." [24] The latter included Michurinist biology and it is notable that no other scientific area was expressly specified in the document.

The Society's main activity was to organize lectures—given by trained speakers following prescribed syllabuses and scripts, including still films for projection—all throughout the country. These lectures dealt not only with subjects such as strength of the Hungarian army, advantages of agricultural cooperation, Stalin's support for the peasantry, agricultural machines in the Soviet Union, Hungarian-Soviet friendship, and the international situation in Korea and China, but also with relatively less ideological subjects such as climate, sleep, contraception, or superstitions. Michurinist biology was presented in the context of international politics, the Marxist-Leninist-Stalinist world view, the transformation of nature and society, and practical issues of everyday life. The long existing popular science jour-

nal of the old society was discontinued by the end of 1948, and a new monthly, *Természet és Technika* (Nature and Technics), was initiated that reflected an editorial policy corresponding to the new regime. The Society also started a new weekly, *Élet és Tudomány* (Life and Science), which remains a most successful popular science journal.

A significant difficulty in the dissemination of Michurinist biology was the lack of experts in this area. In the beginning, relatively few articles that appeared in this literature were written by Hungarian authors. Many were translations of articles by Soviet authors. VOKS (All-Union Society for Cultural Relationships) dispatched a great number of Michurinist books to Hungary.[25]

A new professional journal on agronomy, *Agrártudomány* (Agrarian Sciences), was established by the Ministry of Agriculture in 1949. The first issue was introduced by a detailed summary of Michurinist biology.[26] Lysenko's *Agrobiology* was published chapter by chapter in this journal during 1949. The editors felt it necessary to add a special article to explain the terms used in Michurinist biology.[27] The whole book appeared in 1950.[28] By 1952 all major Russian works of Michurinist biology had been translated. Turbin's Michurinist *Genetics* became the approved text for agricultural schools.[29] A complete textbook of biology from Michurinist point of view was soon made available.[30]

As for education, by the early 1950s, Michurinist biology became part of the curriculum in elementary and middle schools. Textbooks appeared containing pictures showing Michurin as a kind, wise old man helping his people. Even elementary school textbooks explained the importance of plant breeding as giving tremendously increased yields and many new species.

By early 1949 emissaries of Lysenko began arriving in Hungary to give first-hand information on the new biology. The first agrobiologist to visit Hungary was Ivan Evdokimovich Glushchenko, a close coworker of Lysenko, who was a delegate to a meeting of the Society of Soviet-Hungarian Friendship. Glushchenko was the main traveling salesman of Michurin biology in many countries and at international congresses.[31] In Hungary, he visited many institutions and universities and gave numerous lectures on such topics as: "Michurin, the great transformer of Nature," "Struggle between idealism and materialism in biology," "Academician Lysenko as scientist and researcher." On his departure Glushchenko reported to the Hungarian authorities with some chagrin that he did not encounter anyone working along the lines of Michurinist biology during his visit.[32] Hungarians learned of his opinion from Béla Faludi's article

on "Tasks of Hungarian biology" that concluded: "The difficulties are due—as also stressed by professor Glushchenko—that our scientists did not delve deeply enough into materialist philosophy and did not master the use of the dialectical method."[33] Glushchenko suggested that in addition to translating more Soviet works on Michurinist biology it would be helpful to establish experimental laboratories in special farms (*Mintagazdaságok*). His report was evaluated by Ernő Gerő, the second in command of the party, who brought it to the attention of the other leaders of the party, Mátyás Rákosi and József Révai.[34]

Other visiting scientists, as the botanist Pavel Alexandrovich Baranov,[35] the parasitologist Konstantin Ivanovich Skryabin, and the geneticist Ivan Fedorovich Lyashchenko,[36] also significantly contributed to the dissemination of ideas of Michirinist biology by lectures, discussions and visits to scientific institutions. In the subsequent years, the connections between Hungarian and Soviet science became closer. The number of Soviet visiting scientists increased and in addition to shorter trips of Hungarians to the Union of Soviet Republics (USSR), a number of students were sent there for graduate training.[37] A visit of Hungarian farmers to the USSR, including Michurinsk, even became a significant part of a short piece in a leading Soviet literary magazine by the Michurinist writer, Gennadii Fish.[38]

Establishment of an Institutional Base

Among the positive outcomes of the reception of Lysenkoism in Hungary was the institutionalization of biology, a scientific discipline which till then lacked any significant institutional and infrastructural support. Prior to this period, biology had not been taught as a separate subject at Hungarian universities. Tivadar Huzella (1886–1950) taught biology as part of his lectures of anatomy in the medical school in Debrecen and later in Budapest.[39] At the Pázmány Péter University of Budapest and other universities in Hungary, botany and zoology had their own departments but no department of biology existed. Among the few examples of research institutes which existed in the interwar period is the Hungarian Biological Institute, a highly specialized research center in Tihany, at Lake Balaton. It consisted of two departments, one for the study of life in and around the lake and the other for experimental biological studies. Other minor biological institutes served the Nazi-type racist ideology and politics of the interwar ruling regime dealing with genetics, rece hygiene, and eugenics[40]: these included *Magyar Nemzetbiológiai Intézet* (Hungarian Institute of National

Biology), *Központi Öröklésbiológiai és Népesedéspolitikai Intézet* (Central Institute of Hereditary Biology and Population Policy) and *Embertani és Fajbiológiai Intézet* (Institute for Anthropology and Racial Biology). All of these institutions and with them the whole field of human genetics, disappeared completely after the defeat of Hungary in the War.

In the Pázmány Péter University of Budapest (renamed Eötvös Loránd University in 1950), a Department of General Biology was organized in 1948 to give an institutional basis for the accommodation of Michurinist biology. The physician Béla Faludi (1909–1984), who trained in France and worked in medical laboratories before the War, became its head. Faludi had little experience in biology; however, he became interested in biology after the War and became a fervent advocate of Michurinism for most of his life.[41] This Department of Biology became part of the newly established Faculty of Science, created in 1949 in all universities as part of a major reorganization starting in 1948.[42]

The faculties of medicine of the major universities (Budapest, Debrecen, Szeged and Pécs) were reorganized into separate medical universities in 1951. Biology, including some Michurinist biology, became part of their curriculum. Huzella's successor at Debrecen, Imre Törő (1900–1983), professor of anatomy and histology, taught biology for a while; then in 1950, he moved to Budapest to succeed Huzella as director of the newly named Institute of Histology and Embryology. The subject was then called medical biology to differentiate it from plant or agricultural biology that was organized around Michurinist biology. Medical biology dealt relatively little with Michurinist biology.[43]

The official places for training to become a Michurinist biologist were schools of agronomy. They were centralized into the *Magyar Agarártudományi Egyetem* (Hungarian University of Agrarian Sciences) established in 1945 and moved gradually to Gödöllö, a rural town about 30 km from Budapest. A famous professor of this university was Imre Nagy, head of the Department of Agricultural Politics, a Muscovite, and future hero of the 1956 revolution. In 1948, a department of biology was set up for teaching and research in genetics and plant breeding. Barna Györffy (1911–1960), an acclaimed expert on plant genetics in Magyaróvár, was appointed to head the department, and he taught there until 1951.[44] Győrffy, however, was one of the few experts who did not accept Michurinist biology, although he did not admit this openly at the beginning. His successor, Andor Bálint, another expert coming from Magyaróvár, was more accommodating.

Finding an adequate institutional forum for research in Michurinist biology was difficult in the new system of science which separated research from training, and basic research from applied research. Michurinist biology was related to agriculture that was generally considered more of an art than science. Agricultural research was directed by the Ministry of Agriculture, instead of the Academy of Sciences, which was otherwise responsible for the basic sciences. In 1949 the Ministry of Agriculture set up various institutions, including the *Mezőgazdasági Tudományos Központ* (Agricultural Science Center), *Agrobiológiai Intézet* (Institute of Agrobiology), *Erdészeti Tudományos Intézet* (Institute of Forestry), and others, to centralize research conducted in institutions scattered around the country and to introduce Soviet methods.[45] The newly established institutes included the *Központi Növénytermesztési és Növénynemesítési Kutatóintézet* (Central Institute of Plant Cultivation and Plant Breeding) in Budapest and *Agrobiológiai Intézet* (Institute of Agrobiology) in Martonvásár; these were merged into a *Növénytermelési Kutató Intézet* (Research Institute of Plant Production) in 1950 located in Martonvásár. This latter institute became the most important research center of plant breeding. Barna Győrffy already directed an institute that he wanted to name Institute of Genetics, but during the reorganizations in 1949, his institute was incorporated into the Institute of Agrobiology.

A big part of this new, rather complex group of institutes was subsequently transferred to the Academy of Sciences. Fields related to Michurinist biology (agronomy, biology, and medicine) were represented in different sections of the Academy of Sciences, reorganized in 1949 in conformity with the Soviet Academy of Sciences.[46] Their leading experts were elected to membership in the Academy of Sciences, providing significant privileges such as high remuneration, access to special reports, better healthcare, and use of official automobiles. Academy Members became directors of research institutes, heads of university departments, or editors of journals. In short, the new Hungarian regime bestowed power on them in their scientific fields as a reward for political and ideological loyalty.

Scientists' Reception Strategies

As mentioned, Michurinist biology arrived in Hungary along with many other aspects of Soviet rule, none of which could be strongly opposed since the country was effectively occupied by the Soviet army. Almost nothing

functioned as it did before the War, and almost no one could continue with his pre-War life. This was true for science and scientists as well. Scientists could not help but accept the Stalinization of their institutional system. Accepting Michurinist biology meant giving up a more or less unconscious empiricist approach to science and accepting a methodology that relied chiefly on citations of texts of the classics of Marxist-Leninist-Stalinist philosophy. Prior to this period, these texts had been virtually unknown to Hungarian scientists.

The new regime could build up a new institutional system, but the new institutions also needed people who would and could work in them. Glushchenko noticed this problem as he related his experiences in Hungary in his report to the Soviet Academy of Sciences: "Hungarian science, especially biology, is weak." He mentioned the hostile attitude of the Communist authorities to agronomists and scientists "who are regarded as almost reactionaries."[47]

The reaction of Hungarian biologists can be divided into five categories: Passive resistance, passive acceptance, passive opportunism, active opportunism, and sincere belief. Most experts functioned as plant breeders with practical knowledge but lacking in even the basics of genetics. Researchers who wanted to avoid working following the Michurinist line often used such ignorance as an excuse. However, some geneticists even found passive resistance to be an effective response to the new Soviet biology.

Barna Győrffy, for example, was a leading plant geneticist of the period. He received his scientific training in Germany in 1937 supported by a Hungarian fellowship intended to fund research serving the racist politics of the Hungarian dictator Miklós Horthy. Győrffy worked in the *Kaiser Wilhelm Institut für Biologie* directed by Fritz von Wettstein, an adherent of Russian geneticist Nikolai Vavilov.[48] Győrffy was held in very high esteem as a plant geneticist by his Hungarian colleagues, and he never praised Michurinist biology. In fact, when he was asked to speak or write about Lysenko or Michurinist biology, which could have enhanced his and his coworkers' positions, he consistently turned down the requests. Because of his authority as an expert, and a holder of a 1949 Kossuth prize, he was a member of every important scientific institution and body related to plant genetics. However, he was elected a member of the Hungarian Academy of Sciences only posthumously (1990).

In spite of all this, Győrffy was in charge of a large project organized by the Hungarian Academy of Sciences, with the title "Inheritance of Acquired Properties and Studies of Vegetative Hybridization."[49] Five institutions participated in this research project and several others conducted

research on subjects connected with it: Agrarian University (led by András Somos), Soronhorpács (Kurt Sedlmayr), Institute of Agrobiology in Martonvásár, Fertőd, Sopron (Rezső Bokor), Tihany, Institute of Botany at University of Debrecen, Botany Department of the Teachers College in Pécs, and others. Some institutions experimented with crossing distant species. Győrffy's students and coworkers were proud of their master who was considered an excellent scientist and a morally impeccable person.

Other biologists passively accepted the new political reality by publishing materials apparently supporting Michurinist biology. They delivered lectures and published articles with titles such as "Damage of Morganist Genetics to our Plant Breeding," "Hungarian breeders turned to methods of Michurin," "Michurinist Biology and Hungarian Plant Breeding," "The Spread and Results of Michurinist Biology in our Country," "Michurin's Impact upon Current Hungarian Husbandry," and so on.[50] These papers praised Soviet science, described its victories, and explained how much Hungary could learn from it. They emphasized the superiority of dialectical materialism, praised the great men behind its philosophical theories, and so on. Acceptance of the tenets of Michurinist biology in agriculture was seemingly widespread. Three years after 1948, the Hungarian Academy of Sciences already included in the program of its annual meeting a conference entitled "Results of the application of Michurinist Biology in our plant breeding and production of seed material."[51]

These publications, however, often revealed the authors' passive opportunism rather than their simple acceptance. A good example is Kurt Sedlmayr, agronomist of Austrian origin, who rented an estate in Sopronhorpács, near the Austrian border. His estate was nationalized in 1950 but he was kept on as director. He developed new polyploid varieties of beet that gave excellent yield and were more resistant to pests than other varieties available in the market. He cooperated with Barna Győrffy on polyploidy, a favorite topic of Gőrffy's. Sedlmayr was an excellent plant breeder who achieved remarkable results. He praised Michurinist biology and claimed that his success was due to applying its methods but he did not really rely on them in his work.[52] He was elected member of the Academy of Sciences in 1949, and twice received the Kossuth Prize, the highest distinction in Hungary, in 1950 and 1954. In 1956 he emigrated to Austria.[53]

This well-intentioned passive opportunism seems to apply the "veritas duplex" of the Middle Ages, separating from the truth of belief the truth of knowledge. While advertising politically proper ideological positions, passive opportunists relied on expert knowledge in their experimental studies. Such opportunism was tacitly supported by some Soviet visitors,

for example by Lyashchenko who visited Hungary in 1952–1953, and in his lectures he used the Michurinist notions of vernalization, vegetative hybrids, and creative Darwinism with ample citations from Engels, Stalin and Michurin, Lysenko and others.[54] But as a classical geneticist, an expert on wheat and sunflower biology, he was able to discuss with Hungarian plant breeders in technical terms. He suggested breeding plants, such as sunflower and rice, resistant to pets, but he found his Hungarian colleagues' theoretical knowledge and laboratory biology insufficient in contrast to descriptive botany and zoology.[55]

Another strategy, active opportunism, was presented by Imre Törő, member of the Hungarian Academy of Sciences and a knowledgeable medical biologist.[56] With the support of the Hungarian government, Törő had spent 1929–1930 in Berlin Dahlem in the Kaiser Wilhelm Institute of Biology studying developmental biology as a pupil of the future Nobel laureate Hans Spemann and his associate, Hilde Mangold. Subsequently, from 1936 until 1938, Törő worked as a Rockefeller fellow in the Anatomy Department at the Columbia University in New York City. In 1950, after moving to Budapest from Debrecen and becoming head of the Department of Histology and Embryology of the Medical University of Budapest, Törő reported on his own studies on the evolution of "non-cellular living substance," a topic that had very recently—in the summer of 1950—became a major chapter of Michurinist biology.[57] He claimed to have observed the formation of cell nuclei without the participation of pre-existing nuclei and called the phenomenon neokaryogenesis. As he wrote: "The essence of the process is the formation of a new cell nucleus in the protoplasm without participation of the nucleus of the mother cell, by chemical transformation of nucleic acids."

Törő interpreted this as formation of cells from non-nuclear intracellular living matter and stated that his experiments confirmed Olga Borisovna Lepeshinskaya's ideas on the development of cells from non-cellular living matter. Törő presented his claim in one single lecture and published it in detail.[58] In essence that was all he contributed to Michurinist biology. He never returned experimentally to this idea again, which was, however, deemed as important evidence in support of Michurinist biology by the Stalinist authorities who advertised it widely. Newspaper articles, radio reports, interviews and even school textbooks discussed Törő's breakthrough.[59] Törő immediately received the Kossuth prize in 1952 and gradually gained various high positions in directing Hungarian science, including head of different research institutes, laboratories, and medical section of the Hungarian Academy of Sciences. He also chaired scientific committees and