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Subversive affinities: Embracing soviet science in late 1940s Romania

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ABSTRACT

This article discusses the appropriation of Soviet science in Romania during the late 1940s. To achieve this, I discuss various publications on biology, anthropology, heredity and genetics. In a climate of major political change, following the end of the Second World War, all scientific fields in Romania were gradually subjected to political pressures to adapt and change according to a new ideological context. Yet the adoption of Soviet science during the late 1940s was not a straightforward process of scientific acculturation. Whilst the deference to Soviet authors remained consistent through most of Romanian scientific literature at the time, what is perhaps less visible is the attempt to refashion Romanian science itself in order to serve the country's new political imaginary and social transformation. Some Romanian biologists and physicians embraced Soviet scientific theories as a demonstration of their loyalty to the newly established regime. Others, however, were remained committed to local and Western scientific traditions they deemed essential to the survival of their discipline. A critical re-assessment of the late 1940s is essential to an understanding of these dissensions as well as of the overall political and institutional constraints shaping the development of a new politics of science in communist Romania.

1. Introduction

As 1944 drew to a close, an article dedicated to the latest developments in Soviet biology was published in *Buletin Eugenic și Biopolitic (Bulletin of Eugenics and Biopolitics)*, Romania's most important eugenic journal (Cupcea, 1944a, pp. 299–318). It was the first time that Soviet contributions to plant, animal and human genetics were given such an extensive coverage in a Romanian scientific journal. Its author, Salvator P. Cupcea (1908–1958), a psychologist by training, was one of Romania's most promising specialists in heredopathology and human morphology (Cupcea, 1944b). The article was both informative and insightful. It introduced the Romanian reader to the wide range of arguments about heredity put forward by renowned Russian and Soviet scientists such as Klement A. Timiriazev (1843–1920), Ivan V. Michurin (1855–1935), Nikolai I. Vavilov (1887–1943) and Trofim Lysenko (1898–1976). The physiologist Ivan Pavlov (1849–1936) and his school were also pertinently discussed.

Cupcea appeared to be genuinely impressed with Soviet theoretical and practical achievements in the fields of plant biology and human genetics. Old obstacles, he noted, separating biological research from its application to social problems, were overcome in the Soviet Union, as the state empowered the scientists and harnessed their research with a new sense of moral responsibility for the individual. To underline the practical role played by scientists in Soviet society, Cupcea focused on two authors, in particular, Vavilov and Lysenko, appropriately focusing

on their different approaches to the mechanisms of heredity. Tellingly, he did not mention the conflict between Vavilov's Mendelism and Lysenko's rejection of it, rather considered them to be complementary, both existing as forms of scientific legitimisation for one of the most remarkable social experiments in the world: the Soviet “new man and woman”. Biological science, Cupcea noted, was not just confined to its specialised domain, but was strongly influencing the transformation of society, as evidenced by the extensive improvement undertaken by the Soviet authorities to create better living and sanitary conditions for the population, the availability of medical assistance and preventive medicine, public health and unrestricted general education.

Cupcea also cited the impressive work conducted at the Maxim Gorky Medical Genetics Institute in Moscow, directed by Solomon G. Levit (1884–1938), reserving his final comments for another, and at that time closely related topic, eugenics. There had been, he remarked, a strong eugenic movement during the early days of the Soviet Union; however, due to the fact “German biologists turned eugenics into racism, the term itself became compromised and [was now] abandoned” by Soviet scientists (Cupcea, 1944a, p. 317).¹ This is not to say, he added, that the Soviet state abandoned the preferment of individuals with valued hereditary qualities, as the Stakhanovite cult of physical prowess clearly demonstrated. On the contrary! Eugenics, Cupcea concluded, was so broadly disseminated within the Soviet ideology of the “new man and woman” as to no longer need a distinct field of research dedicated to it.

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¹ All translations from Romanian are mine unless otherwise indicated.

In 1944, Cupcea could still harbour hopes that eugenics would be able to distance itself from Nazi racial hygiene. Furthermore, he believed that once the war was over national governments would all want to improve the health of their population. It would thus be possible to placate the ideological opprobrium directed at those eugenicists, who out of necessity or out of conviction, participated in questionable activities before and during the war. Those hopes may explain why he did not mention the growing hostility towards Mendelian genetics in the Soviet Union or the fact that Vavilov was sentenced to death in 1941 for his scientific views (Pringle, 2008). Considering how influential Lysenkoism was in the Soviet Union by then (Graham, 2016; Roll-Hansen, 2005) and how widespread Soviet science would become in Romania and in other countries in East-Central Europe from the late 1940s onwards, Cupcea's assessment of Soviet biology should have, perhaps, come with a warning!

As the Red Army approached from the East, it became clear that Romania's political regime and her alliance with Nazi Germany were no longer tenable. On 23 August 1944, Marshal Ion Antonescu, the head of state, was deposed (he would be executed two years later) and King Michael I (1921–2017) signed an armistice with the Allies. At first there was hope that the country would return to a form of parliamentary democracy, similar to the one enjoyed during the 1920s. Initially, Romania's main political parties—the National Liberal Party, the National Peasant Party and the Social Democratic Party—attempted to co-operate with the Communists, but the latter only grew stronger and more demanding. Eventually, it was all lost. In three years, Soviet communism, greatly aided by an occupying Red Army, became the country's new political creed. On 30 December 1947, King Michael I was forced to abdicate. The monarchy was abolished and Romania proclaimed a people's republic, becoming de facto a satellite state of the Soviet Union.

Historians of communism have examined the development of this ideology in Romania after World War II (Tismaneanu, 2003). Within this historiographic tradition, appropriate attention has also been paid to the emergence of a new Romanian culture and science styled after its Soviet models (Bosomitu, 2014; Vasile, 2011), whilst some scholars have highlighted, perhaps justifiably, the centrality of history and history writing (Moldovan, 2012, pp. 173–187). More recently, the development of Pavlovian psychiatry and the impact of Lysenkoism in plant biology and agronomy in communist Romania have been appropriately contextualised within similar developments in other countries in East-Central Europe (Doboş, 2015, pp. 93–117; Oghina-Pavie, 2017, pp. 73–102). According to these and other studies, the Sovietization of the country brought with it the Sovietization of Romanian culture and science.

In what follows, I expand on this claim and discuss the work produced by Romanian scientists, particularly anthropologists, physicians and biologists, during the late 1940s. The compliance with Soviet science and ideology naturally varied from discipline to discipline, from scientist to scientist, and it occurred in accordance with specific circumstances and often personal choices. Perhaps more than other scientific disciplines, human biology was particularly exposed to political indictment, due first to its object of study, which in Romania, as elsewhere during the interwar period, was mostly racial groups, but also due to the close relationship it had with eugenics. Yet, as I hope to show in this article, the adoption of the Soviet science of heredity by Romanian anthropologists and human geneticists at the end of the 1940s was neither far-reaching nor substantial. To be sure, most of them discarded unwanted theories from the past, including Mendelism, and officially embraced the Soviet ideology of the moment, but Soviet science had no significant impact on either the theory or the practical development of human biology in Romania. Through a combination of factors, including personal tenacity, family connections and a fortunate association with medicine, human biology managed to not only survive the late 1940s but also thrive in the 1950s, finally becoming a fully recognised academic discipline during the 1960s.

2. A false dawn

To some extent the immediate post-war period was one of normality for Romanian scientists. Initially, it seemed that the political changes of 1944 did not alter the directions of research in social and natural sciences. For instance, in that year, the social biologist and eugenicist Gheorghe Banu (1889–1957) announced the publication of his monumental *Tratat de medicină socială (Handbook of Social Medicine)*, planned to extend to nine volumes, out of which only four were published, and all in 1944 (Banu, 1944). The first volume dealt with social medicine, eugenics and demography and included sections on racial typology, eugenics and racial hygiene, as well as on Romanian anthropological research. Banu provided nothing new in terms of ideas or methodology, simply restating arguments he had already put forward in his previous books, most notably *L'hygiène de la race (Banu, 1939)*. Also in 1944, the anthropologist Iordache Făcăoaru (1897–1984) published some of the findings of the fieldwork he carried out amongst the Romanians of Transnistria during the early months of 1942, a study explicitly displaying the objectives of Romanian racial science (Făcăoaru, 1944). These objectives, as is known, were much intertwined with Ion Antonescu's nationalist politics during the war, leaving a troubled legacy for post-war Romanian anthropology.

Whilst the pre-eminence of race in the biological and anthropological discourse was not yet fully questioned, there were scientists who refrained from using it to explain ethnic identity and national affiliation. One such scientist was the anthropologist Olga Necrasov (1910–2000) who, at the beginning of 1945, published the free public lecture she gave a year earlier at the Faculty of Science in Iași on current issues in modern anthropology. In it, Necrasov provided a short outline of the history of anthropology, with attention paid to genetics (Gr. Mendel), biometry (Karl Pearson), serology (Ludwik Hirsfeld), and racial typology (Egon Freiherr von Eickstedt). Tellingly, Necrasov clearly affirmed her commitment to monogenism and, whilst not abandoning the concept of race, she did assign it an exclusive biological interpretation, not to be confused with that of nation or people, which were defined culturally, politically and linguistically. Finally, she accepted that environmental influences did have a role in shaping the evolution of modern man (Necrasov, 1945). With its emphasis on the idea of the racial unity of mankind, Necrasov's interpretation of anthropology was much more flexible than that of Banu and Făcăoaru, who remained committed to racial determinism and hard hereditarianism. Hers opened up the possibility of cultural relativism, whilst theirs was still attached to eugenics and social biology. In 1945, however, these different views existed side by side, with anthropologists still committed to the interwar thinking in terms of the physical typology and the comparative morphology of different racial groups.

The same sense of continuity can be detected in the activities of the scientific institutions in Romania. The main institutes of research in Bucharest, such as Institutul Social Român (Romanian Social Institute), led by Dimitrie Gusti (1880–1955), Institutul Central de Statistică (Central Institute of Statistics), led by Sabin Manuilă (1894–1964), and Institutul Național Zootehnic (National Institute of Zootechnics), directed by the geneticist Gh. K. Constantinescu (1888–1950) continued their activities, as did Institutul de Igienă și Biopolitică (Institute of Hygiene and Biopolitics) under Iuliu Moldovan, which moved from Sibiu to Cluj in 1945. A new lectureship in eugenics, heredopathology and mental hygiene was created at this institute, at the beginning of 1947, continuing its decade-long teaching programmes in the fields of human biology and heredity.² The Department of Bioanthropology at the Institute of Statistics, headed by Iordache Făcăoaru also survived the war, and attempts were made to resume pre-war scientific

² “Memoriu privind necesitatea de a se înființa pe lângă Institutul de Igienă și Biopolitică o conferință de eugenie și eredopatologie” (11 November 1946). Arhiva Spitalului Evreiesc din Cluj, Colecții Private, Cadre medicale: Iuliu Moldovan, Doc. no. 39.

collaborations.³

The opportunities for scientific work shifted to some extent, and in important regards improved. In some cases it was new institutions, such as the Institute of Endocrinology, established in 1946 under the endocrinologist C. I. Parhon (1874–1969), which galvanised biomedical research. An anthropometric laboratory functioned there from the beginning, led by his son-in-law and close collaborator Ștefan-Marius Milcu (1903–1997). In the same year, a Commission for Psychometrics and Anthropology was established by the National Council of Scientific Research, and linked to the Laboratory of Experimental Psychology at the University of Bucharest. It brought together a number of prominent scientists, including C. I. Parhon, Dimitrie Gusti, and the psychologists C. Rădulescu-Motru (1868–1957) and Iacob-Marius Nestor (1901–1989). Animal genetics too benefitted from the establishment, also in 1946, of a new Department at the National Institute of Zootechnics, devoted to the study of heredity, the origin of domestic races of animals and genetic disorders.⁴ It was entrusted to Gheorghe Nichita (1890–1966), Professor of Histology and Animal Physiology at the Faculty of Veterinary Medicine.

Tellingly, physicians formed one of the largest professional groups of the emerging political structures in Romania. Some of them held important positions of power. For instance, in 1947, C. I. Parhon was elected a corresponding member of the Soviet Academy of Sciences and, in 1948, he became President of the Presidium of the Grand National Assembly, a position he held until 1952. A renowned endocrinologist, Parhon was also a man of many political talents. In November 1944, he and other physicians, including Șt.-M. Milcu, Traian Săvulescu (1889–1963), Alexandru Caratzali (1904–1976),⁵ Constantin Ionescu-Mihăești (1883–1962),⁶ Grigore Benetato (1905–1972)⁷ and others, established the Romanian Association for Strengthening Relations with the Soviet Union (Asociația Română pentru strângerea Legăturilor cu Uniunea Sovietică, ARLUS).⁸ Declaring itself to be apolitical, ARLUS however played an important role in the emergence of new patterns of scientific sociability, reflecting the ideological drive towards the Soviet Union.⁹

By 1946 the contours of a new scientific culture were gradually becoming more visible. In accordance with impulses coming from the Soviet Union its general aims were, first, to re-assign the pre-eminence of the social over the biological in the humanities, and second, to open the way for a critique of the inter-war biopolitical epistemology by returning to the historical importance of the individual to the detriment of the community and the race. As elsewhere in the region, this transformation of Romania's scientific landscape was not without hesitations and ambiguities (Connelly, 2000). Different scientific paradigms coexisted side by side. With respect to biology and anthropology,

Mendelianism continued to be accepted as the dominant theory of heredity, alongside Morganism,¹⁰ as illustrated by three books published that year: Alexandru D. Trifu's *Hereditate și educație (Heredity and Education)* (Trifu, 1946); Nicolae V. Găgescu's *Omul în funcție de ereditate și mediu (Man according to Heredity and Environment)* (Găgescu, 1946) and, especially, Ion Biberi's *Introducere la studiul eredității (Introduction to the Study of Heredity)* (Biberi, 1946).

Biberi (1904–1990), a physician who excelled as a writer and literary critic, wrote one of the most informed yet accessible summaries of the history of genetics to be published in Romania in the late 1940s. The book, Biberi maintained, was equally an “introduction to the study of heredity and a preface to the study of biology more generally” (Biberi, 1946, p. 17). His vocabulary was Mendelian, his knowledge of the literature on human heredity impressive, and in a period when it was becoming fashionable to criticize Western science in general and genetics in particular, Biberi did not hesitate to side with Weismann, Mendel and Morgan.¹¹ The “chromosome theory of heredity,” he asserted, “confirmed and demonstrated through numerous observations and experiments, can explain all phenomena of heredity” (Biberi, 1946, p. 95). Yet he did not submit to unconditional biological determinism and genetic essentialism, accepting that certain environmental factors, such as climate and nutrition, played an important role in shaping the individual's “genetic patrimony”. Accordingly, the individuality of each human being was the outcome of the “coexistence of and the interaction between heredity and environment” (Biberi, 1946, 151 and p. 154). One should not, however, consider Biberi a neo-Lamarckist, as he categorically rejected the theory of inheritability of acquired characteristics. “The existence of chromosomes is unquestionable”—he concluded, whilst, at the same time, repeating his conviction that intellectual and moral achievements were not inheritable: “they belonged to the individual: he cannot pass them down to future generations. Acquired characteristics cannot be inherited” (Biberi, 1946, p. 167 and p. 215).

Such views were, however, coming increasingly under attack. One direction taken by critics was to showcase the literature on scientific racism produced before the Second World War, with a particular focus on Nazi Germany. Grigore T. Popa (1892–1948), the former Chair of Anatomy and Embryology (1928–1942) at the Institute of Anatomy in Iași and one of the founders and editors of the journal *Însemnări ieșene (Notes from Iași)* (1936–1940) offered such criticism, in a book published in 1946 and entitled aptly *Viață și societate (Life and Society)*. One important section in the book was devoted to “Probleme rasiale” (“Racial Problems”) and included four lengthy studies, written between 1937 and 1940. Popa was well versed in the international literature on race, and he reviewed with the same proclivity for objectivity and from an anti-racist position the works of such diverse authors as Immanuel Kant, Eugène Pittard, Leo Frobenius, Vincenzo Giuffrida-Ruggeri, George Montandon, Otto Reche, Arthur de Gobineau and H. S. Chamberlain. The main focus of his analysis was, however, German scholarship on race, and Popa confidently exposed its weak scientific foundations and racist connotations. It was a powerful critique of racial sciences, including anthropology, although Popa refrained from any direct criticism of Romanian authors who published on race during the 1930s (Popa, 1946).

There was no such reticence in Octav Maller's *Ereditate și mediu (Heredity and Environment)*, also published in 1946. Maller (1917–?), who studied medicine in Bucharest, Paris and Kharkov, spent the war as a psychiatrist at various hospitals in Cernăuți, Kharkov and then in the

³ I. Făcăoaru's letter to O. Necrasov (14 November 1946). Fond personal Olga Necrasov, Centrul de Cercetări Antropologice ” Olga Necrasov ”, Academia Română, Filiala Iași.

⁴ Tr. Săvulescu's letter to C. I. Parhon (1 March 1948). Fond personal C. I. Parhon, Arhivele Naționale ale României, Bucharest, Inv. no. 1709, Dosar IV/3.

⁵ Caratzali studied medicine in Paris with Raymond Turpin (1895–1988) during the 1930s. Together they published a number of research papers on “mongolism”, as Down's syndrome was known at the time. He is considered the founder of the Romanian School of Cytogenetics. During the 1950s he was Director of the Laboratory of Genetics at the Institute of Oncology in Bucharest (established in 1949).

⁶ Ionescu-Mihăești was a specialist in microbiology and anatomical pathology. He became Director of the Pasteur Institute for Sera and Vaccines in Bucharest, after the death of its founder, Ion Cantacuzino, in 1934.

⁷ Benetato was Professor of Physiology at the Medical Faculty in Cluj (1937–1958) and Director of the Institute of Physiology (1958–1972) in Bucharest.

⁸ Parhon's involvement with the pre-war eugenic movement—he was briefly President of the Union of the Eugenics Societies in Romania and President of the International Federation of Latin Eugenic Societies and even a supporter of eugenic sterilization in the 1930s did little to prevent his public ascendancy after 1944.

⁹ ARLUS published journals such as *Veac nou (New Century)* and *Analele Româno-Sovietice (Romanian-Soviet Annals)* and through its publishing house it offered a wide range of translation from Soviet/Russian authors into Romanian.

¹⁰ The theory took its name after the American geneticist Thomas Hunt Morgan (1866–1945), who demonstrated, based on his experiments with the genetic characteristics of the fruit fly (*Drosophila melanogaster*), that genes are carried on chromosomes and are the mechanical basis of heredity (Allen, 1978). Morgan's 1932 book *The Scientific Basis of Evolution* was translated into Romanian in 1938 (Morgan, 1938).

¹¹ This strong pro-Mendelian stance did not seem to affect his subsequent career. He remained a published author under communism, both of novels and of scientific books.

Uzbek town of Denov. After his return to Romania in 1945, he began working at the Central Hospital in Bucharest and at the newly established publishing house "Editura de Stat".¹² As announced in the subtitle, *Contributions to a Dialectical Biology*, Maller attempted not only to discuss the relationship between heredity and the environment, but equally importantly, to suggest a new methodology based on Soviet science and Marxist materialism. Existing Romanian literature on heredity, he argued, was deficient both conceptually and ideologically. How was it possible, he asked, that "two years have passed since our political emancipation [23 August 1944] and no attempt has been made to extirpate the remnants of racist science, implanted artificially in the soil of our culture" (Maller, 1946, p. 6). Also, worryingly, he continued, was the fact that the Romanian public was not informed about the progress of Soviet science in the fields of genetics and heredobiology, and that Mendelian theories of heredity remained prevalent.¹³

He then set about dismantling Weismannism,¹⁴ Mendelism, and Morganism. For instance, if Weismannism was described "as the attempt to offer a scientific justification to Bismarckian imperialism," Mendel's laws of inheritance were dismissed as "only projecting the phenomenon of heredity, [revealing] only what exists on the surface—in other words the *apparent* process of heredity" (Maller, 1946, p. 25 and p. 33. Emphasis in the original). A number of chapters are devoted to the criticism of T. H. Morgan. What Maller particularly grasped about Morgan was the social and political applications of his theories, which he described as "racist eugenics" and as providing "the basis for the deadly eugenic sterilization practices which served the purification mission of Nazi medicine" (Maller, 1946, p. 96).

In contrast to the Mendelian and Morganist theories of inheritance, which stressed the inevitable aspects of heredity, Maller argued that neo-Lamarckism ensured that human beings developed continuously and thus become more suited to social life and natural environment.¹⁵ What needed to be understood was that Soviet genetics vindicated Lamarckism, giving environment ("mediu") an equal if not superior importance in relation to heredity. According to Maller, Romanian scientists should, in the first place, resist the encitement of Mendelism and Morganism. The purging of racist thinking followed. "Racist eugenics" was simultaneously an ideological and a scientific description, which he applied to the "the anti-evolutionary conception based on Mendel's laws and Morgan's theory." To remove its influence, demanded nothing less than "a change of mentality, the chromosomal mentality". When that revolution of the mind occurred, Maller prophesized, "a new era will begin for all sciences." For medicine, in particular, this would mean the move from "eliminationist eugenics to medical humanism" (Maller, 1946, pp. 120–121).

Yet Maller's denunciation of Mendelism and Morganism did not entail a complete rejection of modern genetics. For instance, he discussed with approval the work of Nikolai K. Koltzoff (1872–1940), Director of the Institute of Experimental Biology in Moscow and President of the Russian Eugenics Society. Koltzoff's book on *Physiologie du développement et génétique* published in Paris in 1935 provided Maller with an alternative theory of genetics, one which he described, erroneously, that had attempted "to adapt the chromosome theory to a dialectical conception of the living matter" (Maller, 1946, p. 65).

¹² In 1954 Maller became a lecturer in psychiatry at the Institute of Psychiatry and Mental Hygiene in Bucharest. He emigrated to the USA in 1958. Arhiva Informativă, CNSAS, Bucharest, Fond Personal Maller Octav, Dos. No. 48556, vol. I 405396.

¹³ For instance, he acknowledged the significance of Biberi's book on heredity but chastised his Morganism.

¹⁴ The theory named after August Weismann (1834–1914), the German evolutionary biologist, according to which inheritance material is passed over by the germ cells.

¹⁵ There was always a strong Lamarckian bent amongst some Romanian social hygienists and eugenicists although not amongst those physicians and biologists who after 1945 re-positioned themselves as the leading professionals in the field. None of the major figures in post-war Romanian genetics such as Gh. Stroescu, Alexandru Caratzali or C. Maximilian was neo-Lamarckian. Săvulescu's post-1947 embrace of Michurinism and Lysenkoism flatly contradicted some of his earlier publication on genetics.

Genetics had to be reworked into a materialist vision, and that reworking was now the task of the Romanian biologists and physicians.¹⁶

Finally, and like Cupcea, who did not refer to the attacks against Nikolai Vavilov by Lysenko's supporters, Maller did not mention the same attacks against Koltzoff. Neither was Maller completely opposed to eugenics; he only rejected what he called the racist and Mendelian versions. Even so, it comes as a surprise that Maller concluded his book with an endorsement of "rational eugenics" which, he suggested, "can only be prophylactic." There was now, he believed, a firmer scientific theory of heredity, one which accepted the importance of the environment and allowed for self-improvement. This was not the racist eugenics of the past but the "progressive eugenics" of the future, whose main objectives were "the creation of appropriate conditions for the harmonious development of man and the premarital education of the youth" (Maller, 1946, pp. 125–126).

The proposed interpretation of human heredity was thus flexible, and, as seen, there were many ways in which certain ideas or authors and the ideological demands of the emerging communist ideology could find common ground. In 1946, it was still possible to propose an eclectic conceptual arrangement, reflecting simultaneously the external, political pressure to conform to new ideological guidelines and the remnants of an internal, independent scientific thinking. This situation did not last, however. The very nature of the interwar Romanian culture and science was becoming increasingly demonized and attempts were made for its complete removal. To this effect, anti-racist propaganda was used to explain the pseudo-scientific foundations of Nazism and fascism. An interesting choice was the Austrian communist Ernst Fischer (1899–1972), whose 1941 book *Die faschistische Rassentheorie* was translated into Romanian in 1947. Fischer dismantled the racial fantasy and, by implication, the entire racist vocabulary that found its expression in the Nazi ideology. "Fascism," he suggested "needed a racist theory" to generate social cohesion and ideological unity (Fischer, 1947, p. 15). According to Fischer, the notion of a "superior" German race and of "inferior" races represented by the Jews, the Poles, the Czechs and others was exploited in conjunction with the carefully planned myth of "blood and soil". These were ideas that Nazi ideologues absorbed from the long tradition of European racism, and then transformed them for the purpose of territorial expansion and the conquest of other nations.

Equally important is another aspect of Fischer's book: the discussion of Soviet biology and the rejection of Mendelism. Fischer traced the racist theory of inferior and superior races directly to Mendel's theory of heredity and T. H. Morgan's chromosomal theory of inheritance. They were described both as "the outcome of scientific fantasy" and as sources of modern racist theories (Fischer, 1947, pp. 19–20). One scientific tradition in biology, however, that of Michurin and his followers T. D. Lysenko and the botanist N. V. Tsitsin (1898–1985), successfully opposed Mendelism. According to Fischer, Soviet biology stood politically and scientifically in direct opposition to Western genetics. Moreover, the Soviet egalitarian project postulated the unity of the human race, whilst racist theories rejected it. In connection with this argument, Fischer criticised the latter group's attempts to efface any meaningful distinction between "race," "people," and "nation," and denied arguments about "racial purity" and "racial continuity" any scientific relevance. Therefore, to consider the Jews "a race", as proclaimed by German racial scientists, was not only inaccurate—Fischer considered them to be a "religious community"—but also extremely dangerous, as it harnessed existing anti-Semitism in Germany with additional potency (Fischer, 1947, pp. 41–56).

Ultimately, he believed, the fascist interpretation of the central role of race in history and the entire ideological edifice built around it could only be refuted by an equally impressive ideology, that of historical

¹⁶ A similar transformation occurred in other countries in East-Central Europe. For Hungary see Müller, 2017, pp. 1–19.

materialism, and its personification in the socialist project achieved in and promoted by the Soviet Union. The key premise in Fischer's argument is that the transformative power of the Soviet socialist order originated equally in the defensive war against Nazi Germany and from its investment in new codes of social normativity and scientific knowledge. As such, it reflected and conformed perfectly to Romania's new political orientation, itself marked by the condemnation of scientific racism and then to an altogether annihilating attack of its proponents.

1947 marked not only the end of the political *ancien régime* in Romania but it was also the last year when books by important interwar eugenicists and anthropologists were allowed to appear in print, including Gh. Banu et al.'s *Biologie du peuple roumain* (Banu et al., 1947) and Victor Preda's *Tratat elementar de antropobiologie (Basic Handbook of Anthropobiology)* (Preda, 1947). Both authors stressed continuity with the pre-war paradigms in racial sciences, both at home and abroad, and continued to uphold conceptual frameworks that would soon come under severe criticism. At the same time, however—and in accordance with the changes in the scientific debates described above—they criticised ideas of racial purity and superiority, and the viewpoint which posited the central importance of race in shaping the nation's historical development. “Race,” Preda noted, was not “a biological reality” and did not “organize social reality”; it was just another term describing a “conventional group of peoples with similar morphological traits which, however, have no bearing upon their psychological and intellectual appearance, their social evolution, their language and historical origin” (Preda, 1947, p. 40).

The broadening of theoretical perspective and the explicit criticism of racism voiced by well-established Romanian scientists, such as Banu and Preda, clearly meant a departure from the standard racial science practiced before and during the war; yet neither of them embraced Soviet theories of heredity, nor did they re-cast their research in the newly Soviet-inspired vocabulary of some of their contemporaries. Both retained their erudition without availing themselves of references to Soviet authors which adorned much of the scientific and popular literature on science published at the time. But they were swimming against the tide of scientific opinion. By 1947, the absorption of Soviet science was widespread, emboldened also by the strengthening of political ties with Romania's powerful neighbour. A new political era was about to begin, followed by the creation of a new culture and society. As Mihail Roller (1908–1958), a member of the controlling Section of Propaganda and Agitation (Agitprop)¹⁷ of the Central Committee of the Workers' Party announced in 1949: “A thirst for culture as great as it is now, and such an impetus in all fields of science, literature, and arts, have never been seen in Romania before” (Roller, 1949, p. 1). What this presupposed was the transformation of the entire academic edifice in Romania according to Soviet models (Vasile, 2015, pp. 523–536; Ionescu-Gură, 2001). One of the architects of this process was Traian Săvulescu, who was appointed president of the newly established Academy of the Romanian Popular Republic (RPR); the other was C. I. Parhon. Roller, again, described them aptly, “The majority of our intellectuals have understood that the study and the spread of Soviet culture, the most advanced culture in the world, are needed for the fruitful development of science and culture in Romania” (Roller, 1949, p. 6). It was all propaganda, of course, to some extent, but there was also a grain of truth in Roller's ostentatious claim.¹⁸ As Romania's ambassador to the Soviet Union (between 1945 and 1957), the linguist Iorgu Iordan (1888–1986) reminisced about Săvulescu. He “carried out without hesitation, the orders that came from the [Section of Propaganda and Agitation] (Iordan, 1987, p. 90).

¹⁷ His superior was Leonte Răutu. Other important members of the Section included Iosif Chişinevschi, Sorin Toma and Ofelia Manole (Tismăneanu & Vasile, 2008).

¹⁸ This was also confirmed during a discussion with Prof Denis Buican, Personal communication, Paris, 27 May 2016.

A new cultural strategy was officially declared in February 1948 when Gheorghe Gheorghiu-Dej (1901–1965), General Secretary of the Romanian Workers' Party, announced in his report to the Central Committee that the country's only possible future was to embrace unconditionally the “Marxist-Leninist ideology of the proletariat,” based on the writings of Marx, Engels, Lenin and Stalin (Gheorghiu-Dej, 1955, pp. 156–157). Scientific developments in the Soviet Union proved the catalyst, as always. At a much publicised plenary session of the All-Union (Lenin) Academy of Agricultural Sciences (VASKhNIL) held at the beginning of August 1948 in Moscow, Lysenko proclaimed his Michurinist theory of heredity as the official doctrine of Soviet agriculture (Lysenko et al., 1949). Soon thereafter all countries in East-Central Europe under Soviet domination adopted a similar position (deJong-Lambert and Krementsov, 2017). Here is how one Romanian journal described it:

The memorable session held in August 1948 at the V.I. Lenin Academy of Agricultural Sciences in Moscow represented a true revolution in biological sciences. Its impact was not limited to agriculture but was felt in equal measure in medicine, psychology, forestry, and so on. In the USSR, the old notions based on the philosophic-idealistic philosophy of Weismannism and Morganism are eliminated, and a new, revolutionary science is built, based on Marxist-Leninism, and on the dialectic materialism applied in biology by Michurin and Lysenko, (“Editorial,” *Revista Pădurilor*, 1949, n.p).

The promoters of this new science were not left waiting. Already at the beginning of 1949, the Institute of Agronomic Research organised a nation-wide meeting devoted to the latest developments in Soviet agriculture and animal breeding, endorsing Lysenkoism. A similar submission to Soviet science was expressed at the Congress of the Intellectuals of the Romanian People's Republic for Peace and Culture, organised between 29 and 31 March. On the concluding day, Săvulescu presented his reflections on plant breeding and general biology; all were firmly wedded to Michurinism and Lysenkoism. In an adequate new scientific idiom Săvulescu, who authored the report, derided Western biology and genetics as idealistic and theoretical, in contrast to the empirical and materialistic character of Michurin's theories of plant hybridization and Lysenko's dialectical theory of inheritance. He adopted Soviet agrobiological as the single official scientific methodology, sanctioned by Marxist materialism and exhibiting the incontestable truth in agronomy and plant physiology (Săvulescu, 1949a).

3. Lashing out: science and ideology

The much debated adoption of Soviet science was, however, not without conflict and public accusation (Iftimovici, 1991, p. 13). One highly publicised incident is worth discussing here. On 28 June 1949 the Presidium of the Academy of the RPR met to discuss a report from the Medical Section occasioned by the publication, a year earlier, of the first (and, as it turned out, the only) issue of *Revista de Oftalmologie (Review of Ophthalmology)*. The editor of the journal was Nicolae (Miklós) Blatt (1890–1965), a well-known and highly respected specialist in ocular diseases, who until 1947 was also the official ophthalmologist for the Romanian Royal family. After the war, Blatt was appointed Professor of Ophthalmology at the Institute of Hygiene in Timișoara, but remained closely connected to academic and political circles in Bucharest. As was the case with many other physicians, he interpreted the spirit of the immediate post-war period as one of reform of medical sciences and the creation of new institutions. To this effect, he laboured to establish a National Institute for Ophthalmology (Blatt, 1947), but the abdication of King Michael at the end of 1947 and the ensuing political change prevented the realisation of this initiative.

Undeterred, in 1948, Blatt established the *Review of Ophthalmology* to publicise the activities of two Romanian scientific societies devoted to the medical and surgical research on the eye and eye diseases more

generally: the Ocular Society (Societatea de Oculistică) and Romanian Society for the Prevention of Blindness (Societatea Română de Profilaxia Orbirii). It all began auspiciously. Blatt was well known internationally and secured a number of Romanian and foreign specialists for the editorial board, including Vladimir P. Filatov (1875–1956), the Soviet specialist in tissue therapy and one of the first to achieve a successful transplantation of a cornea from a patient in 1931; Adolphe Franceschetti (1896–1968), the Swiss ophthalmologist, a specialist in the inheritance of eye diseases; the American Sanford R. Gifford (1892–1944), Associate Editor of the Archives of Ophthalmology; the Brazilian Archimede Busacca (1893–1971), a specialist in the histology of the eye; and the Frenchman Paul Jeandelize (1872–1969). Equally important, the journal met with a favourable reception amongst eye specialists abroad. The Anglo-American ophthalmologist William H. Crisp (1875–1951) saluted the new publication in the *American Journal of Ophthalmology*, highlighting Blatt's pivotal role in the development of clinical research into the treatment and prevention of eye disease and vision loss in Romania. As a country bordering the Soviet Union, Romania occupied, Crisp noted, “a somewhat uncertain position in relation to the civilization of western Europe” (Crisp, 1949, p. 594); moreover, most Romanian medical research was written in French and it was in that language that Romanian scientists accessed the international community. Due to language barriers, however, not much of this research was known in the USA, and therefore this journal, Crisp remarked, filled an important gap in the existing ophthalmological literature.

The *Review's* reception was very different in Romania. The new scientific establishment was less impressed with the *Review's* international recognition, and did not appreciate the encouraging note it received from its counterpart in the USA. On the contrary! On 28 June 1949, alerted by a Report from its Medical Section,¹⁹ the Presidium of the Academy²⁰ reacted promptly, condemning the *Review of Ophthalmology's* “cosmopolitan, anti-patriotic and anti-scientific positions” (“Resolution of the Presidium,” 1949, p. 5). After praising “the achievements and experience of Soviet medical science”, the Report's first allegation against the *Review* was that it completely ignored local, Romanian traditions of medicine. It did not publish articles by Romanian scientists, “ostentatiously preferring the collaboration of specialists from western capitalist countries” (“Report of the Section for Medical Science,” 1949, pp. 6–7).

This cosmopolitan attitude was closely connected to the *Review's* cultural elitism and the Report reprimanded it for expressing no interest in “the health problems of the working masses.” Not least damaging was the *Review's* “inadmissible disregard of the Rumanian language,” as the articles were “published mainly in French and English.”²¹ By prioritizing French and English over Romanian, the *Review* perpetuated “the old bourgeois and big landlord tradition of ignoring the national language, considered by the old exploiting classes to be ‘uncultured’ and ‘inadequate’ to express scientific thought” (“Report of the Section for Medical Science,” 1949, p. 7). The dichotomy between “us”—“scientists who are linked to the people” and who published their works in Romanian—and “them”, including those like Blatt, who

¹⁹ The Report was signed by C. I. Parhon; Ștefan Nicolau (1896–1967), Director of the Institute of Imfiamicrobiology; Arthur Kreindler (1900–1988), professor of neurology at the Faculty of Medicine; N. Gh. Lupu (1884–1966), Director of the Institute of Internal Medicine; Daniel Danielopolu (1884–1955), Director of the Institute of Physiology; Vasile Mârza (1902–1995), Minister of Health; Ștefan Milcu and Nicolae Hortolomei (1885–1961), Director of the Clinic of Surgery and Urology and Colțea Hospital in Bucharest.

²⁰ The Presidium consisted of the following individuals: C. I. Parhon (Honorary President); Traian Săvulescu (Acting President); Gh. Nicolau (Secretary); Barbu Lăzăreanu (General Director of the Library); Petre Constantinescu-Iași, E. Macovski, Ștefan Nicolau, N. Profiri, Mihai Sadoveanu and Simion Stoilov (Presidents of the Academy's Sections).

²¹ This claim was unfounded as out of the 12 articles published four were in Romanian.

harboured an “anti-patriotic attitude” by writing in foreign languages, was also used to great effect.

This was a very severe accusation indeed. There was no greater sin in an aspiring socialist country, such as Romania, than to be separated from and to be against the “people.” The new ideological language was typically about the redemption of the Romanian people and their enlightenment according to Soviet communist principles. The Report was thus keen to highlight the egalitarian ethos of the new order. Yet, at a time when the Russian language was introduced widely in universities and schools across Romania, the insistence on the importance of the Romanian language is revealing. It was in the national language, and not in Russian, that “scores of thousands of young people—young people who daily and in increasingly large numbers are springing up from the working masses and who will form our scientific cadres of tomorrow—acquire the knowledge of scientific achievements” (“Report of the Section for Medical Science,” 1949, p. 7).

The other aspect outlined by the Report was the *Review's* alleged neglect of Soviet research in the field of ophthalmology in favour of that carried out in Western countries. This was a field of medical research in which “Soviet science undoubtedly holds the first place in the world with achievements which exceed by far those of the science of capitalist countries.” But the *Review* chose instead to “propagate dependence and a spirit of servility towards the decadent bourgeois culture of the West, in order to make its readers believe that the most notable scientific conquests in the field of ophthalmology were due exclusively to science in capitalist countries.” The *Review's* embracing of Western science was perceived as a betrayal of Romania's new scientific orientation, as was its purported aim “to sabotage the effort of ophthalmologists in our country [to appropriate] the vast experience, working methods and latest data of ophthalmic science in the Soviet Union” (“Report of the Section for Medical Science,” 1949, p. 8).

In order to prove the pre-eminence of Soviet science in the field of ophthalmology, the Report highlighted the work and the “epoch-making” achievements of Vladimir P. Filatov in the successful development of corneal transplantation. As noted above, far from ignoring Filatov, Blatt invited him to join the *Review's* editorial board; yet he published an article on cornea grafting, “Les greffes de cornée”, not by “the great Filatov”, but by another scholar, Adolphe Franceschetti. According to the Report, this article had “nothing in common with a truly scientific, impartial attitude.” Franceschetti presented his own work as ground-breaking, without even mentioning Filatov. This was, simply put, yet another example of the “hate” and feelings of resentment that the “science of bourgeois imperialism” had against “Soviet science, because it [was] a science placed in the service of the people, of peace, humanity and of Socialism” (“Report of the Section for Medical Science,” 1949, p. 10 and p. 13).

The Academy of the Romanian People's Republic, as well as its Medical Section, openly rejected “this decadent, anti-human ‘science’ of ‘scientists’, subservient to the bourgeoisie and to obscurantist imperialism.” The defence of “scientific truth” in Romania was relentless and unforgiving, as shown in the last part of the Report, which focussed on Nicolae Blatt. His “uncritical servility towards the decadent science of the Western bourgeoisie” and “hostile attitude towards Soviet science” (“Report of the Section for Medical Science,” 1949, pp. 13–14) was repeated persistently: for example, when Blatt reviewed Filatov's work—he, needless to say, did it “superficially” and by comparing it with the work of Western scientists—or when he published an article on trachoma by the Italian Giambattista Bietti (1907–1977), Director of the Eye Clinic at the University of Rome, which did not mention the work by the Soviet ophthalmologist V. V. Chirkovski (1875–1956), founder, in 1922, of the first research institute devoted to trachoma in the Soviet Union. His “scorn” for Soviet science was equally matched by his “scorn” for the Russian language—“the language of Pavlov and Filatov, of Pushkin and Gorki, of Lenin and Stalin” (“Report of the Section for Medical Science,” 1949, p. 16).

The definitive evidence, if more was needed, of Blatt's contempt for

Soviet ophthalmology, was, of course, the above mentioned notification in the *American Journal of Ophthalmology*. Finally, Blatt's own scientific work, institutional activity and university teaching was targeted and described in disparaging terms. His connections to previous political regimes, his involvement with the rescue of Jews and the military duty he performed as a pilot during the war, were all interpreted as examples of his "servility" towards the "German occupants" and "the war criminal, Antonescu" ("[Report of the Section for Medical Science](#)," 1949, p. 17). Behind these allegations lurked something much more alarming and, as it turned out, symptomatic of the new scientific environment in Romania emerging at the end of the 1940s: the incompatibility between scientists following established academic canons, both local and international, and the new politics of science implemented by those who placed themselves at the vanguard of the Romania's cultural and scientific transformation.²² This occurred within an ideological context that differed from that of the immediate post-war period in terms of its growing indoctrination of culture and science according to the Soviet models.

4. Towards a "Proper" scientific orientation

It bears repetition that at the end of the 1940s the Sovietization of Romania was in full swing, with growing emphasis on total control of politics, culture and science, in conjunction with the nationalisation of agriculture and industry. Socialism was certainly not unfamiliar to the educated elites but the regime that was formalized with the constitution of 13 April 1948, a duplicate of the 1936 Soviet Constitution, brought with it political oppression and the standardization of social and cultural life according to the main tenets of Stalinism. The model was the Soviet Union's new cultural policy and the anti-cosmopolitan and anti-Western strategy (*zhdanovshchina*) adopted by the Soviet Minister of Culture by Andrei Zhdanov (1896–1948). He cast fundamental doubt on the importance of Western science, whilst simultaneously extolling local cultural achievements and Soviet patriotism ([Krementsov, 1997](#), pp. 129–131).

By the end of 1948, *zhdanovshchina* had been fully embraced by Romania's new cultural warriors such as Leonte Răutu (1910–1993), the head of the Agitprop. In 1949, Răutu denounced cosmopolitanism and bourgeois idealism which, according to him (and his source of inspiration, Zhdanov), characterised Western social sciences. Alongside imperialism, cosmopolitanism was the enemy of national culture and did not suit the character of the Romanian people ([Răutu, 1949](#)). The Report of the Medical Section of the Academy of RPR echoed Răutu's views, pointing out that a new state of affairs now informed Romanian scientific research and scientific writing more generally. Under the simultaneous impact of Soviet ideological pressure and the growing memories of the political terror associated with it, a new overall, standard interpretation of science was required. It was the President of the Academy, Traian Săvulescu, who provided it.

Săvulescu's Report to the Plenum of the Presidium of the Academy, accompanied the Report of the Medical Section. The central aim was to synthesise the ideological aspects of the "proper orientation of scientific activity" in Romania ([Săvulescu, 1949b](#), pp. 1932 and [1949c](#), pp. 7–19). In short, Săvulescu wanted science to be "a truly powerful instrument for raising the level of our country and our people and [...] to contribute effectively to the building of Socialism." Within the new re-organisation of the scientific field in Romania, Săvulescu reiterated, the Academy assumed a pivotal role, as the highest cultural authority fully supported by the country's Communist Party. Its relevance was not just

²² When asked to declare publicly that he was guilty of all the accusations levelled against him by the Academy of RPR, Blatt declined. He was released from his editorial and teaching positions at the university and was put under surveillance by the Romanian Secret Police (*Securitate*). In the late 1950s he was allowed to work at the Clinic of Ophthalmology at the Clinical Hospital in Bucharest. He managed to leave Romania in 1964.

academic but equally social. It was the Academy's "historical task of guiding the people along new paths, towards a brilliant future." What this required of the socialist scientists, predictably enough, was social engagement and the abandonment of cultural elitism. In the new socialist Romania science aspired to be the expression of the people's will and was expected to draw "inspiration from the reality of life" and to be "fully bound with the life of the State" ([Săvulescu, 1949b](#), pp. 19–20).

The argument about the social embeddedness of science was connected to another, equally important one: its national character. Săvulescu took issue with the views that science was "universal" and knew "no boundaries," existing only in the abstract and seeking the "transcendent truth." Science was national, first and foremost, he argued, invoking Joseph Stalin's definition of the nation from his 1913 *Marxism and the National Question*. To suggest that science was cosmopolitan was, therefore, retrograde and only served the political agenda of Western imperialism. The national character of science was far from being simply a matter of the transfer of knowledge, but involved a broad ideological perspective deriving from the identification of "proper" scientific activity with national emancipation. Cosmopolitanism was a tool for subjugation of other people for the purpose of imperialism and self-enrichment by a particular group of scientists. There was one virtue which epitomised the difference between national and cosmopolitan scientists: the ability to represent your own people. According to Săvulescu "[t]hose who do not plant the roots of their science in the soil of their country, in the aspirations and needs of the people, strengthen the myth of the inferiority of our science and the exclusive value of Western science" ([Săvulescu, 1949b](#), p. 22).

A new sense of national responsibility was needed on which socialist science could be based and allowed to flourish. The flame of international idealism and the impulse of personal gratification were to be extinguished once and for all. Science was now in the service of the people: "We request that our scientists should be devoted to the people and loyal to the working class, that their problems and themes should be part of the struggle for doing away with the backward conditions in the country, for carrying out the economic and cultural plan of the State of people's democracy, for building Socialism" ([Săvulescu, 1949b](#), p. 25).

This was the new language Romanian scientists learnt to speak for personal and professional reasons, and it was the one they shared with Soviet and other scientists from East-Central Europe.²³ In a broader context, and as had happened in the Soviet Union, the years 1948–1950 marked the total submission of Romanian agriculture, pomiculture and silviculture to Soviet ideological and political authority ([Pașcovschi, 1949](#), pp. 156–158; [Priadencu, 1949](#), pp. 167–169). Western, that is to say Mendelian, genetics was excised from the scientific vocabulary of Romanian plant biologists, zootechnists, and forest experts ([Popovski, 1949](#)). Darwinism, on the other hand, continued to be accepted as the scientific foundation for evolution, albeit in its slightly amended Soviet version ([Timofeev, 1949](#), pp. 173–178). Medical and biological sciences, too, were aligned to the new ideological model without, however, embracing Lysenkoism. By the early 1950s, "the totalitarian regimentation of thought", the expression used by the English biologist Julian Huxley (1949–1975) to describe the situation in Soviet biology after 1948, also characterised the scientific community in Romania.

5. Conclusions

It is the elasticity of Romanian science during the late 1940s with respect to both Soviet communism and its own internal traditions that I hope to have revealed here. As in any other scientific fields, anthropology, human biology and medicine too were not free of internal discord and, often enough, of open conflict, as Blatt's case clearly

²³ As demonstrated by the International Congress of Phytopathology, Entomology, and Plant Protection held in Bucharest between 25 July and 4 August 1949 or by the common meeting between Soviet and Romanian physicians organised in 1950 ([Zilele medicale Româno-Sovietice, 1950](#), p. 1 and p. 3).

demonstrated. Certainly, these developments need to be understood in terms of the wider political context in Romania during the late 1940s. Compared with other scientific disciplines such as plant biology, agronomy and forestry, references in biology and anthropology to Soviet authors, such as I. V. Michurin and T. D. Lysenko, were at times prudent and often subtle. As I have attempted to argue here, the adoption of Soviet science at the end of the 1940s was a convoluted process. The much-vaunted Lysenkoisation of Romanian agriculture and plant biology was only a part, and perhaps not the most significant one, of a more ambitious ideological process. For some Romanian scientists such as Traian Săvulescu, embracing Soviet models served to support their political career. Others such as Octav Maller explicitly used the critique of Western genetics as a way to achieve a much-needed equilibrium between the new communist ideology and their discipline. Finally, for others such as Olga Necrasov the new regime instituted in 1947 provided an opportunity to bring together the biological and the social (in addition to the scientific and ideological) aspects of their research; to inscribe anthropology within the wider social and cultural practices of Romania's new national politics. But the yearning for social change and reform also played a major role, and initially communism effectively seduced those who believed that Romania needed a profound transformation. Although certain elements of Soviet science were doctrinally rigid, its adoption by Romanian scientists was surprisingly elastic. Even Săvulescu's text, discussed in the last section, for all its political opportunism and allegiance to Soviet norms, maintained a certain connection to pre-war Romanian science in its cult of the nation, its distinction between "our" culture and "theirs" and its sense of patriotic devotion. To transform science into *the science of the nation* has animated Romanian scientists since the 1920s.

By the beginning of the 1950s the new Romanian science was corseted with a new ideological garment. Some elements of it were stable, such as the reference to Marxist historical materialism and the pre-eminence of the social over the biological, others, such as the references to inter-war Romanian scientific traditions or Western authors, were seen as damaging, both to authors and, more importantly, to the general transformation of Romania into a socialist democracy. As prophesied by its new political leaders, at the end of the 1940s, Romanian scientists had embarked on a new path, excising bourgeois idealism, fascism and racism from their writings and research and embracing a scientific culture moulded on its Soviet model. Studying this period enables us to better understand and contextualise not only the history of science in a country too often marginalised in the scholarship, but also the ideological constellation that would control the production of scientific knowledge in Romania in the ensuing decades.

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