Book Reviews

Genetics Under Stalin

The Vavilov Affair. MARK POPOVSKY. Archon (Shoe String), Hamden, Conn., 1984. viii, 216 pp. $19.50.

When the conflict between the Stalinist state and the Soviet scientific community hardened in the late 1930's, Nikolai Vavilov led the defense on the most critical front, genetics. He was arrested in 1940 and died in prison in early 1943 while his opponent T. D. Lysenko rose to become a dictator in Soviet biological and agricultural science. Vavilov and the stand he took became a symbol and a source of inspiration for Soviet scientists. Alexander Vucinich in his recent history of the Soviet Academy of Sciences, *Empire of Knowledge* (1984), has described their long fight for autonomy through the 1940's and '50's, which ended successfully in the middle of the 1960's when Lysenko was finally dethroned.

Mark Popovsky, who has lived in the West since 1977, collected materials for a biography of Vavilov in the period between Stalin's death and the invasion of Czechoslovakia. It is Popovsky's presentation and analysis of archival material that make this book unique among existing accounts of Vavilov's life and work. This material falls into three parts. The first pertains to Vavilov's family life, the home where he grew up and his two marriages. This glimpse behind the public facade of a man who is alleged to have slept five hours a day and worked the rest makes him more human. The second part is drawn from the archives of scientific institutions and focuses on the relationship between Vavilov and Lysenko. The third part is from the Vavilov file of the secret police and gives us knowledge of who pulled the strings in the campaign against Vavilov and how it was done.

Popovsky's interpretation of the second part of the material was published in Russian in 1966 (*Prostor*, nos. 7 and 8, 5–27 and 99–118) and in German in 1977. Popovsky tells that Vavilov took a positive view of the young Lysenko from the late 1920's to the middle of the 1930's and supported him in various ways that furthered his academic career. Popovsky went so far as to describe Lysenko as Vavilov's protégé in the early 1930's. This immediately drew sharp criticism from Zhores Medvedev, who pointed out a number of mistakes (*Novyi Mir*, no. 4, 226–234 [1967]). In David Joravsky's standard account, *The Lysenko Affair* (1970), Popovsky's article was mentioned in footnotes, but his claims about Vavilov's support for Lysenko were not taken seriously. Popovsky has corrected some mistakes in this English version but in general upholds his interpretations.

In the opinion of this reviewer Popovsky provides an important correction to the standard view of the relationship between Vavilov and Lysenko that may also improve our general understanding of the interaction of science and politics under Stalin. Lysenko was not merely a pseudoscientist whose regime was imposed on the scientific community by outside political dictate. Some of his physiological work was highly praised even by his strongest critics among the geneticists. And Lysenko's criticism of classical genetics was to a larger or smaller extent supported by prominent Soviet biologists, among them B. A. Keller, B. M. Zavadovsky, and V. L. Komarov. Keller was academician and head of the Academy's Botanical Institute from 1931; Zavadovsky played a central role in discussions of the methodology of biological science from the 1920's onward; Komarov was president of the Academy from 1936 to 1945.

A more discriminating analysis of the scientific issues would have strengthened Popovsky's argument. For instance, he does not distinguish clearly enough between Lysenko's work in plant physiology and his work in genetics. Though Vavilov found much of value in the former, he rejected the latter from the beginning. Lysenko started his career with physiological work. It was only by 1935 that he started publicly to push his genetic ideas, and this was also when Vavilov's attitude to Lysenko started definitively to cool off.

The material from the police archives as presented by Popovsky shows clearly that Vavilov's opposition to Lysenko's biological theories was the cause of his arrest and conviction in a quite direct way. Accusations of "wrecking" activities, which consisted in obstructing the development and application of Lysenko's agrobiology, appear to have been the central element in the interrogation of the accused as well as in other investigations carried out by the police. Vavilov quickly confessed "wrecking" activities harmful to Soviet agriculture, but he persistently denied any involvement in espionage, according to Popovsky's account.

The interest of Popovsky's story is heightened by his personal engagement with the issues. He gives lively descriptions of his encounters with various people who had been in contact with Vavilov as scientists, medical staff, policemen, and prison inmates. It is also part of the personal atmosphere surrounding this biography of Vavilov that back in the 1940's Popovsky's father wrote a biography of Lysenko as the great hero of Soviet agricultural science. Lysenko was for many Soviet citizens a god that failed rather than a pseudoscientist that Stalin forced them to believe in.

The personal intensity with which this book is written makes it prone to doubtful claims and stretched interpretations, but there is no doubt that it is a very valuable addition to existing literature on the history of Soviet science.

NILS ROLL-HANSEN
Institute for Studies in Research and Higher Education, Norwegian Research Council for Science and the Humanities, Oslo 1, Norway

The Influence of Malthus

Malthus Past and Present. J. DUPÂQUIER, A. FAUVE-CHAMOUX, and E. GREBENIK, Eds. Academic Press, Orlando, Fla., 1983. xx, 416 pp., illus. $49. Population and Social Structure. From a conference, Paris, May 1980.

T. R. Malthus, avows the first editor of this collection, "seems more than ever alive," and a Unesco conference with 164 papers and 500 participants from 61 countries surely attests to the existence of a scholarly industry. This volume contains nine summaries of sessions and 20 other papers first presented at that meeting.

The expansion of interest in the thought of Malthus in the past several decades derives from his identification of an inherent tendency toward population growth that constrained the possibilities of sustained economic prosperity. The congruence of the intellectual mood of the past decade with that of England during its period of ideological response

to the French Revolution has heightened his relevance. Finally, the enduring scholarly concern with Malthus results from his complex understanding of human beings and human societies as entities endowed simultaneously with biological, rational, and moral attributes.

Malthus emphasized the fundamental disparity between the biological capacity of all species, including humans, to reproduce and the relatively limited potential of the environment to sustain a growth in numbers. His famous principle of population, enunciated in the anonymous first *Essay* of 1798, specified a geometric tendency for population growth and an arithmetic path for the increase in the supply of food. Substantial declines in mortality after World War II and the consequent rapid growth of populations in less developed countries revived the specter of eventual demographic disaster that increases in productivity and reductions of marital fertility, both unanticipated by Malthus, had subdued in European societies during the preceding century.

Malthus may be appropriately considered an intellectual ancestor of the neoconservatives of the present. By attempting to do good, governments ended up doing evil. By fostering early marriage, Malthus contended, the English Poor Law that subsidized the incomes of workers with families merely increased the numbers of the poor. Although he rejected the utopian hopes stimulated by the Enlightenment and the early phase of the French Revolution, Malthus was neither entirely pessimistic nor averse to believing that a sound social policy could improve the lot of mankind. Central to a correct policy was the establishment of a social and economic framework that encouraged individuals to work and to consider rationally the future consequences of their actions. The system of private property properly encouraged and rewarded effort, but government could provide public education to increase the incidence of rational behavior in the population.

Unlike traditional conservatives, Malthus was a social scientist, a theorist in the Enlightenment style. Indeed, his writings are not now widely read, in part because his elegant theory was so succinctly stated. Controlling the growth predicated by the principle of population were only two factors—the positive check of mortality and the preventive check of moral restraint, by which Malthus meant delayed entry into marriage. Although the signed second edition of the *Essay* (1803) provided more empirical documentation and more subtlety to the argument, the basic theory remained unchanged through four additional editions published during Malthus's lifetime (1766–1834).

The papers in this collection trace the evolution of the Malthusian legacy in scientific disciplines and ideological movements. An interdisciplinary scholar in an age before lines among disciplines were firmly drawn, Malthus is one of the progenitors to several. One section of the volume focuses on his legacy in biology, an influence notably initiated by the influence that Charles Darwin accorded to his population principle. The authors here—R. Keynes, P. A. Jewell, V. C. Wynne-Edwards, and Rose E. Frisch—emphasize different aspects of the relationship between the capacity of the environment and biological limitations on the size or reproductive performance of the population. No one, however, provides a critical overview of the relevance of the Malthusian variables in population biology.

The absence of a Malthusian school may explain the absence of such a general assessment. The social scientists writing in this volume also treat Malthus distantly. His *Essay* is recognized as a classic, and not just in the sense of a work that is cited but not read; it is a valuable text in a program of liberal education that seeks to inculcate wisdom in students. But both economics and demography, the two social sciences most closely related to Malthus, have successfully separated theory from the history of thought; history, whether of thought or of experience, is central to neither discipline.

The most substantial empirical contributions to this symposium deal with different aspects of the historical context of Malthus, including an analysis by E. A. Wrigley of demographic patterns in English history and a description by B. Stapleton of the demographic situation in Malthus's own parish of Wotton in the southern English county of Surrey. Other papers consider Malthus's use of ethnographic evidence (M. Godelier), the role of his ideas in the movement for the abolition of the Poor Laws (Anne Digby), and the implications of his thought for the Anglican theology of his generation (A. M. C. Waterman). Malthus was an ordained clergyman, but professionally he was a political economist, the first professor of that subject in England, at the East India College. Although he sought not to offend orthodox Christian views, his theories exemplify the natural theology of the 18th century that minimized reference to the Biblical basis of Christian belief.

Yet Malthus was a moralist as well as a theorist, and moral questions complicate his legacy for social and ideological movements that have formulated positions on birth control. Different groups have addressed the issues raised by Malthus, but their responses have varied depending on moral judgments about birth control, arguments about other influences on economic growth, and emphases on the relative benefits of individual and societal change. Ironically, the name of Malthus was perpetuated by late-19th-century groups that advocated birth control; contraception was too controversial to be advocated in Malthus's time, and he had classified it as a "vice." Still, rational planning to improve the well-being of self, spouse, and children legitimately may be designated as "neo-Malthusian." Although the means differs, the Malthusian psychology still pertains.

Even though Karl Marx vehemently denounced Malthus, elements of late-19th- and early-20th-century socialist movements saw birth control as a benefit to individual workers and their families; further, by reducing the supply of labor, contraception raised the wages of the working class as a whole. Marx rejected the notion of an inherent or natural population problem; the accumulation of capital, rather than any biological tendency for reproduction to exceed the means of subsistence, was responsible for the immiseration of labor. Socialist advocacy of birth control was thus a reformist, not a revolutionary, position.

No group, however, has exhibited much consistency in its history of thinking about birth control. Advocates of women's rights for the most part either ignored or opposed contraception during the 19th century, whereas an important segment of 20th-century feminism, particularly in the United States, has linked women's reproductive freedom to larger issues of female emancipation. Most religious groups, with the notable exception of the Roman Catholic Church, have also shifted from opposition to support of birth control. Even the Catholic position is not without its anomalies. The social rationale of current Catholic doctrine, as outlined in an essay by P. Guillaume in this collection, incorporates a faith in the potential of technological progress to sustain population growth that rivals the optimism of Enlightenment thinkers. Essays in this volume consider different facets of the reactions of socialist, religious, and feminist groups to Malthusian thought and the issue of birth control.

Although this collection contains useful factual information and several signif-

icant interpretative essays (particularly those by Jewell, Wrigley, Digby, and N. Keyfitz), it does not satisfy the demands of either the specialist or the general reader. The former will want to refer to the more detailed and developed arguments that the authors summarized for the conference; the papers here do serve as a useful bibliographic guide to the literature. The latter needs a more coherent treatment of the subject. *Malthus* by William Petersen (Harvard University Press, 1979) is recommended as a lively, engaged interpretation of his thought and its significance in the social sciences.

DANIEL SCOTT SMITH
Department of History, University of Illinois, Chicago 60680

Neolithic Advances

The Neolithic Transition and the Genetics of Populations in Europe. ALBERT J. AMMERMAN and L. L. CAVALLI-SFORZA. Princeton University Press, Princeton, N.J., 1984. xvi, 176 pp., illus. $25.

This book is an interesting attempt to bridge two disciplines—genetics and European prehistory—that have tended to ignore each other. What the authors have tried to do is to explain, first, the spread of agriculture across Europe 8000 years ago and, second, the present-day distribution of European gene types. Their approach is attractively simple. First, they examined the archeological evidence to see if it indicates a Near Eastern origin for the earliest agriculture in Europe. This it does, by and large: the earliest farming settlements in southeastern Europe are only slightly later than their Near Eastern counterparts but are considerably earlier than those in northwestern Europe. The second stage was to decide if this "wave of advance" is most reasonably explained as the result of population movements by farming peoples who gradually infiltrated the territories occupied by local Mesolithic hunter-gatherer groups. In the authors' opinion, the growth rates of these early agricultural societies are likely to have been sufficiently high for new settlements to be continually founded ever deeper inside Europe, so that farming could have become established over the continent within two or three millennia through colonization. The third and most interesting part of their work was to see if the distribution of present-day European gene types can be explained as largely residual from this expansion of Neolithic agriculturalists. By using multivariate techniques, they reach the conclusion that the genetic makeup of modern Europeans still reflects these population movements of 5000 to 8000 years ago.

In this pioneering attempt, the authors have been courageous, and admirably tenacious over a 15-year period. There are, however, several problems that need raising. The first pertains to the archeological aspects of their work. A description of what happened does not in itself provide an explanation of how it occurred. Few would deny that there was a "wave of advance" of agriculture across Neolithic and later Europe: this has been amply demonstrated by carbon-14 dating. The question is whether this indicates agricultural colonization alone. Prehistorians need to maintain a careful balance between explanations that are "elegant" and simple and those that are naïve and simplistic. The principle of parsimony works well enough for many of the sciences; monocausal explanations do not, by and large, for historical disciplines. Phenomena as large-scale and far-reaching as the adoption of agriculture (or for that matter the growth of civilization, or the origin of hierarchically organized societies) are unlikely to have been caused by one process alone. These days, prehistorians are becoming wary about envisaging the adoption of agriculture in Neolithic Europe as simply an earlier version of the 19th-century agricultural colonization by Europeans of the Americas, Africa, and Australia. Europe's first farmers lacked the overwhelming technological superiority over the final Mesolithic populations that their recent counterparts had over predecessor populations in the areas they colonized. Mesolithic groups may also have been less incapable of adopting agriculture than has customarily been supposed. Unfortunately, Ammerman and Cavalli-Sforza have not broken new ground in their adherence to a venerable monocausal explanation of how farming first became established in Europe.

But how then to explain the present-day distribution of European gene types? That is indeed an interesting and worthwhile question. A modest assumption would be that the present-day distribution is a palimpsest reflecting numerous ethnic movements over several millennia. One that certainly occurred—and that may still be traceable—was at the end of the last ice age, when late Paleolithic and early Mesolithic groups moved northward into areas previously uninhabitable. Others much more recent occurred in medieval, classical, and most probably late prehistoric times. All these are better documented than the population movements that may have occurred in the Neolithic. Unraveling the genetic consequences of all these movements would be difficult but fascinating. It would, I suspect, substantially modify the conclusions reached by the authors on the importance of population movements during the early Neolithic in Europe.

As a contribution to our understanding of the spread of agriculture across Europe, I would not rate this work very high. However, the approach it represents merits serious consideration by prehistorians and geneticists. The authors are rightly enthusiastic about its potential and about the value of extending it to other areas. Though not overly happy about the baby, I would not throw away the bath water.

R. W. DENNELL
Department of Prehistory and Archaeology, University of Sheffield, Sheffield S10 2TN, England

Behavioral Neurology

Cerebral Dominance. The Biological Foundations. NORMAN GESCHWIND and ALBERT M. GALABURDA, Eds. Harvard University Press, Cambridge, Mass., 1984. xii, 232 pp., illus. $27.50. From a conference, Boston, April 1983.

The late Norman Geschwind was intensely involved with his ideas and always committed to putting them into a historic context. On one occasion he lectured with vigor about the corpus callosum and his own not inconsiderable role in understanding the structure. Robert Joynt, the next lecturer and an old friend of Geschwind's, opened his own paper with the observation, "Norm, there is an old saying in vaudeville that there is nothing harder than to follow a dog act." The person in the large auditorium laughing the loudest was the intellectual advocate himself, the irresistible Dr. Geschwind.

For the past 20 years Geschwind and his colleagues have led the field of clinical behavioral neurology. Geschwind himself was almost single-handedly responsible for making behavioral neurology a field of study in the United States. His classic set of papers on disconnection syndromes, published in 1965, set neurology, anatomy, and psychology spinning and established a mechanistic context for the study of higher integrated functions that remains singular. In the ensuing years he made countless contri-