

Food Problems

Soviet Agriculture. ZHOES MEDVEDEV. Norton, New York, 1987. xiv, 464 pp. \$27.50.

Not far from the center of Moscow, a lovely Botanical Garden sprawls over many acres with a profligacy possible only where land is as haphazardly valued as it is in the Soviet Union. One of the most intriguing sections of the park is called the "Russian Historical Kitchen Garden." There, under the watchful patrol of a militiaman who enforces the "No Picking" injunction, strollers can observe broccoli, cauliflower, curly cabbage, kale, rosemary, sage, and other vegetables and herbs that have not been seen in Russian markets or kitchens for decades.

Zhores Medvedev has written an excellent and readable account of how a country with the agricultural potential of the Soviet Union has become a major food importer and still offers its citizenry a diet that, although adequate in calories, lacks variety and quality. Medvedev is a biologist who experienced at first hand the misfortunes that Trofim Lysenko inflicted on Soviet agricultural science. He expected his inquiry into the difficulties of Soviet agriculture to detail how Lysenko mortgaged the sector in pursuit of his harebrained schemes and turned over a much-depreciated asset when his account was called in. Midway into his project, however, Medvedev found that, appalling as the effects of Lysenko were, they were not all that was wrong with Soviet agriculture. The policy environment and institutional structure of agriculture in the Soviet Union have handicapped the sector at least as much as Lysenko.

Medvedev begins appropriately with the agrarian situation prior to the revolution and argues that the Stolypin Reforms in the decade following the Revolution of 1905 did not have time to accomplish for Russia what the Enclosures did for England. Much of Russia entered the Soviet period with a communal system of land tenure that retarded the transformation of the peasantry into modern farmers. Soviet policy dating from the day after the storming of the Winter Palace through Stalin's death (with perhaps a brief interlude during the New Economic Policy of the 1920s) emphasized appropriation of agricultural output rather than production. Medvedev shows the resulting poverty of much of the rural population and of the rest of the country as well. In extreme

years there was famine (1921, 1932-33, and 1946-47) and in better years a deterioration in diet and rural standards of living. The potato, which we think of as traditionally the basis of the Russian peasant's diet, became even more so as it replaced grain. Goats (the Stalin cow) were important for rural families because their heads were not taxed and their milk could not be processed by state dairies. Medvedev relates how the ravages of collectivization were compounded by the horrors of war. Women in rural areas replaced not only conscripted tractor drivers but also conscripted fuel and draft animals.

The early part of Medvedev's story is fascinating but less intellectually challenging than his later account of the dull Brezhnev years. There are few mysteries as to why Soviet agriculture performed poorly under Lenin's and Stalin's stewardship, but Brezhnev reversed the flow of resources and began pumping investment into the sector. Throughout much of his tenure, agriculture received about 30% of all investment in the economy. Output improved, but at very high cost, and in the mid-1970s even this expensive growth slowed down. Brezhnev passed to his heirs an agriculture very costly both in rubles and in dollars that still does not offer animal products in the quality and quantities that consumers demand.

Medvedev shows us subsector by subsector how money was spent to relatively little effect. Distortions in input markets and poor incentives became extremely costly with Brezhnev's decision to invest in agriculture. Medvedev fears that some of the high costs are passed on to future generations through environmental degradation: erosion, gully-ing, and deterioration of soil and water quality.

Problems with agriculture now are acute both on the supply side and on the demand side. Costs of production are significantly higher than those of major world traders; the continued protection of Soviet producers is costly to their society. Severely distorted retail prices lead consumers to seek quantities of meat, dairy products, fruits, and vegetables that will not be available even if very optimistic production targets are met.

Medvedev outlines the choices Gorbachev has in agriculture. He wisely refrains from speculating much on how far the fragile reform effort will be pushed or how success-

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ful it will be. Medvedev's account makes it clear that for Soviet agriculture there is no way back. Nor is it obvious to the current leaders, caught as they are in a maze of constraints, which way is forward.

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Archeological Reconstruction

Production and Exchange of Stone Tools. Prehistoric Obsidian in the Aegean. ROBIN TORRENCE. Cambridge University Press, New York, 1986. xiv, 256 pp., illus. \$44.50. New Studies in Archaeology.

One goal of archeology today is the development of "middle-range theories" or interpretative methodologies for reconstructing past cultural behavior. The main objective of this volume is the formulation of middle-range theory to link archeological data with specific kinds of economic exchange. The volume is a stimulating piece of research that (i) identifies the behavioral correlates of exchange, (ii) discusses how to recognize and measure this behavior from archeological residues, and (iii) provides a test case using Neolithic and Bronze Age data from the European Aegean.

Most attempts to reconstruct prehistoric exchange networks have focused on consumption levels and the frequency with which items move over space. Though this regional approach has been fairly successful, it presents the problem that different forms of distribution (such as direct barter, gift prestations, balanced reciprocity, and direct procurement) can produce identical distributions of archeological materials. Torrence questions the regional approach and proposes that exchange also be examined from the perspective of how production systems are organized to meet resource demands.

Torrence believes that production provides an indirect measure of the volume of exchange. Levels of craft specialization, technical skill, resource ownership, and division of labor are ways the production systems respond to demand. As exchange increases, societies will adopt more expedient, standardized and cost-efficient means of production. The author uses the production and exchange of stone tools to develop quantitative and qualitative measures that archeologists can use to evaluate levels of economic interaction. Stone tools are an important component of archeological assemblages the world over, and the methodology developed here will be useful to archeologists working in many cultural settings.

Mesoamerican archeologists will find the volume particularly useful because the author examines critically many assumptions and approaches used in that area.

The measures for examining exchange from a production perspective are developed in an orderly and scientific way. A review of the literature on reconstructing exchange relationships provides a backdrop against which to contrast the production approach. The behavioral factors linking production to exchange are then developed in a chapter reviewing the ethnographic aspects of stone tool production. The specific methodology for the production approach is developed with reference to Aegean obsidian exchange during the Neolithic and the Bronze Age. The author examines obsidian exchange from three different perspectives. First, the regional perspective is used to examine how efficient procurement networks moved obsidian over space. Second, habitation sites are examined to evaluate whether production was carried out by full- or part-time craft specialists within a commercial economy. Finally, mining and quarrying activities at the Melos obsidian source are examined for what they indicate about the intensity, efficiency, and specialization of commercial exploitation.

The conclusions reached are at variance with traditional interpretations of Aegean obsidian exchange. The author finds little evidence for either commercial or entrepreneurial procurement of obsidian at any level of the economy. Mining at the Melos obsidian quarries appears to have been sporadic and was not monopolized by any particular group. Attempts to measure standardization of production demonstrate that there is little variation in the morphology and efficiency of tools produced in workshops as opposed to domestic locales. Production efficiency as measured by error rates, platform preparation, and tool dimensions in Bronze Age sites is similar to what the author presents for part-time and nonspecialized knappers in New Guinea and Ethiopia. The author concludes that the data do not support the existence of Bronze Age commercial workshops throughout the Aegean. Rather, stone tool procurement, production, and exchange were carried out on the basis of efforts by part-time specialists within a multifaceted economy involving long-distance maritime exchange.

The book provides a useful model for the development of middle-range theory on exchange. It is not surprising that the author used obsidian, which has been the focus of numerous economic studies. The challenge for other archeologists is to achieve the same level of sophistication using ceramic, ground stone, or other artifact categories.

Although there will be difficulties, this volume provides a valuable example of how this work might proceed.

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The Role of GABA

Neurotrophic Activity of GABA During Development. DIANNA A. REDBURN and ARNE SCHOUSBOE, Eds. Liss, New York, 1987. xii, 277 pp., illus. \$66. Neurology and Neurobiology, vol. 32. Based on a symposium, Mexico City, July 1986.

The development of the vertebrate central nervous system is an exceedingly complex process. It involves many cell cycles, terminal division, and cellular differentiation or death, as well as cell migration and sustained maintenance of the phenotype in the context of intricate neuronal and glial circuits. Elucidation of the cellular and molecular bases underlying this dynamic period of growth has attracted an increasing number of neurobiologists and will continue to engage many generations of scientists.

This book is a brief and relatively eclectic collection of papers derived from a meeting on the neurotransmitter gamma-aminobutyric acid (GABA) and its trophic role in the vertebrate CNS. The material is arranged in nine chapters by 19 investigators, most of whom have studied the possibility that GABA not only acts as a transmitter mediating rapid forms of intercellular communication at central synapses in the adult but also has potential functions during the development and differentiation of the CNS. Some of the chapters are extensive attempts to review the vast literature relevant to GABA in CNS tissue, whereas others are revised versions of previously published observations with descriptions of new or confirmatory experiments added. Most of the contributions necessarily conclude on speculative notes since real understanding in this area is limited. Enough has been discovered to warrant this initial report.

The detection of GABA-containing cell bodies and fiber tracts in various regions of the embryonic and early postnatal CNS, the presence of specific binding and uptake reactions involving GABA and GABAmimetics with embryonic CNS membranes and cells, and the pharmacological effects of GABA and GABAmimetics on the cellular properties of cultured embryonic neurons, all of which are covered in this book, support the premise that GABA plays a role, as yet undefined, in CNS development. This volume is not only a quite readable account of