Challenges for the U.S.S.R.

Technical Progress and Soviet Economic Development. RONALD AMANN and JULIAN COOPER, Eds. Blackwell, New York, 1986. viii, 214 pp., illus. $45. Based on a symposium, Birmingham, England, 1984.

Gorbachev has staked the success of his regime on material improvements in the performance in the Soviet Union's domestic economy and has made technical progress a keystone of that program. This book, prepared by the "Birmingham group" in the United Kingdom just on the eve of Gorbachev's ascendancy, provides a fine base for insights into the new leader's strategy, problems, and prospects. Ronald Amann, director of the Centre for Russian and East European Studies at the University of Birmingham, and his colleague Julian Cooper use this opportunity to answer critics of their earlier works (*The Technological Level of Soviet Industry* [with R. W. Davies; 1977] and *Industrial Innovation in the Soviet Union* [1982]) and try to fill some gaps in those seminal volumes. Though some may find the conclusions of the Birmingham school represented by Amann and Cooper too pessimistic or too optimistic, any interested person should find this book an important source. The documentation the authors provide, carefully drawn from Soviet sources, provides a basis for assessing their overall judgments and estimating Gorbachev's prospects for success.

The central proposition of the Birmingham analysis is that, in spite of considerable, albeit uneven, progress, Soviet technical achievements have fallen short of the needs of the Soviet economy. The much-discussed Soviet strategy for shifting from extensive to intensive growth, made more urgent by increasing resource scarcity and costs, leaves a material gap in accomplishment between the Soviet Union and the West. The authors acknowledge that many measures of progress based on comparisons with advanced Western countries that they used in their earlier analyses, which emphasized widening technological gaps, may have been imprecise and misleading. Moreover, in contrast to the school of thought that sees the Soviet Union as entirely dependent on Western technology, they reinforce their earlier judgments that the Soviets have demonstrated a substantial capability of their own for effectively pursuing technological programs; Soviet constraints on technical progress, they argue, derive as much from problems in the Soviet system of innovation and diffusion as from the problem of acquiring and assimilating foreign technology.

This volume is particularly timely in view of emphasis Gorbachev has placed since taking power on computer applications, microprocessors, and other developments associated with the information-technology revolution. The requirements of this revolution cannot be addressed satisfactorily by Gorbachev's "intensification program," aimed at garnering, belatedly, the fruits of the "economic miracles" of the Western industrial economies of the 1950's and 1960's.

On the intensification program, the Birmingham group continues to utilize its disaggregated analytic process for assessing the microeconomic underpinnings of macroeconomic generalizations. The book offers detailed discussion of those key technologies in which the Soviet Union had a leadership position that was then eroded by the slowness with which the technologies were put to use. This assessment of the Soviet assimilation shortfall could have supplied Gorbachev with the material he used in his Khabarovsk speech of July 1986, when he complained at length about the continued use of obsolete technology throughout Soviet industry. The excellent chapter on machine tools and electric motors by Malcolm Hill and Richard McKay provides a sobering basis for evaluating Gorbachev's claim that most of the Soviet Union's key factories will be operating at a world level of technology by the next decade.

In information technology Paul Snell credits the Soviets with more progress and capability than many others in the West have, but even on the more favorable view the task Gorbachev has laid out in this area is formidable. Development and application of microprocessors are especially inconsonant with the Soviet Union's inflexible, innovation-unfriendly system of management.

Both the promise and the problems of new areas of biotechnology involving the chemical development of protein-reinforcing feed for livestock are well illustrated in this volume by Anthony Rimmington. In spite of the priority it has given to this effort, the Soviet Union will likely be faced with increasing requirements for importation of feed grain or with low feeding efficiency in meat production.

The dynamism of the Western developed economies presents the Soviets with the additional challenge of accelerating targets. As Vladimir Sobell points out, the smaller countries of the Council for Mutual Economic Assistance are pressed with the same problem of keeping up while catching up. Gorbachev's new CMEA long-term plan for technological development announced after this book was written would presumably be skeptically assessed by Sobell, who would probably doubt the ability of the smaller East European countries to act either as a technological surrogate for the West or as an effective channel to the Soviet Union for improving the absorption of Western-type technology.

Cooper's contribution on the civilian production of the Soviet defense industry adds interesting insights from a number of specific sectors. The examples he gives substantiate his view that the civilian and defense sectors are not as separate and independent as some have concluded and that defense industries have made substantial contributions to the performance of civilian industries. Still, where these contributions occur production capacity appears to remain under the control of the Ministry of Defense Industries. Even when priority shifts from tanks to tractors, the defense sector thus keeps a strong hand. It may now be necessary for the Soviets to consider more basic revisions in the defense-civilian relationship, especially separation of defense production and research facilities from the civilian sector. The information revolution—highlighted by the Strategic Defense Initiative type of technology—may well require a more open, dynamic civilian research establishment with close links to or integration with military research. Such changes in the system and broader "radical reforms" will not be easy to achieve, as David Dyker notes. But as Daniel Bond projects economic performance on the basis of Soviet perceived needs and planned development, technological progress is not just an optimistic conjecture of some Western observers but a necessity for Gorbachev.

What should our concern in the West be with respect to Soviet technical development? As Gary Bertsch perceptively notes, answers to this question will continue to be contentious and uncertain in the United States and the West generally because we have such a poor factual basis for understanding the potential of Western technology for meeting the needs of the Soviet system. We would do well to study the assessments of Amann, Cooper, *et al.* and then undertake further careful analyses. With a firmer underpinning of knowledge, the proper role of trade and security in East-West relations might be assessed with more light and less heat.

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