mental considerations have received inadequate attention in the drafting of Soviet economic plans. George Ginsburgs ("Soviet International Trade Contracts and the Execution of Foreign Commercial Arbitral Awards") shows that the paucity of Soviet treaties on enforcement of arbitral decrees have weakened the enforceability of decisions of Soviet arbitration panels.

Other essays included are: F. J. M. Feldbrugge, "Law and Political Dissent in the Soviet Union"; Donald D. Barry and Carol Barner-Barry, "The USSR Supreme Court and Guiding Explanations on Civil Law, 1962–1971"; Dietrich A. Loeber, "Samizdat under Soviet Law"; A. K. R. Kiralfy, "Soviet Labor Law Reform since the Death of Stalin"; Peter B. Maggs, "A Computer Model of the System of Legal Regulation of the Soviet State Industrial Enterprise"; and William E. Butler, "Some Reflections on the Periodization of Soviet Approaches to International Law."

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EVOLUTION OF INTERNATIONAL MANAGEMENT STRUCTURES. Edited by *Harold F. Williamson*. A joint publication of the University of Delaware and the Eleutherian Mills-Hagley Foundation. Newark, Del.: University of Delaware Press, 1975. xii, 254 pp. $20.00. Distributed by Temple University Press, Philadelphia, Pa.

This book is the report of a conference held in May 1972, the purpose of which was to examine the growth and development of large-scale enterprises in the United Kingdom, Germany, France, Japan, the USSR, and internationally—all in the light of Chandler's theme (found in his *Strategy and Structure*), that changing structure is a response to changing strategy. The papers are not original research studies carried out for the conference, but essays that can essentially be described as the work of business historians with the defects commonly found in such writing: research unguided by explicit theory, case studies in which the representativeness of the cases is left unexplored, conclusions which are either innocuous or seem unrelated to the data.

This is a pity, because the problems implicitly posed by Chandler (in his paper for the conference) are extremely interesting. Chandler starts from what amounts to an economic determinism hypothesis concerning the development of the American economy: that the size of individual companies and the structure of their management organization are both products of the external economic environment. The larger the possibility for cost-reducing economies which are external to any small firm or to a single unit within a large company, the greater will be the relative importance of multi-unit companies, and the more centralized will be the management of these companies. The more multi-unit companies direct their attention to achieving goals other than realization of cost economies external to their individual units, the less centralized will be their managements. This hypothesis is fully within the tradition of the "survivorship" argument for profit maximization.

This hypothesis could have been used for generating fascinating questions for international comparison. For example: (1) Has the growth of multi-unit firms in individual countries been more the result of market imperfections, rather than of cost-reduction factors, than was the case in the United States? If so, has this re-

sulted in the direction of national differences in management structure within large companies predicted by the Chandler hypothesis? (2) Where the economic environment is such as to generate cost-reduction possibilities which are economies external to the individual units of a company, have the social and cultural forces at work within individual countries been sufficiently strong to transform the profit-maximizing company structure from the one indicated by American experience to another—either more or less centralized? Regrettably, no systematic effort was made at the conference to explore such questions.

In the opinion of this reviewer, the more interesting papers are those of Chandler, of Yamamura and Patrick (on Japan), and of Wilkins (on nineteenth-century American multinationals). The bibliography on German entrepreneurship in Schmitt's paper is also noteworthy. Unfortunately, the treatment of Soviet enterprises is of little interest.

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THE MATHEMATICAL REVOLUTION IN SOVIET ECONOMICS. By *Alfred Zauberman*. London: Oxford University Press, 1975. xiv, 62 pp. $9.00.

A decade ago, the American Economic Association and the Royal Economic Society sponsored a three-volume survey of economic theory; this fine monograph is in that tradition for Soviet mathematical economics. It reviews developments beginning with Kantorovich, compares them to British and Hungarian work, and synthesizes major findings and their impact on Soviet planning.

Mathematical methods suitable for planning include a variety of techniques. Kantorovich's optimization technique was a beginning: this maximizes a goal (such as output) subject to constraints (such as resources), and one variant is linear programming. A second technique extends maximization into time: this maximizes a goal over a period of years or continuously, one variant being Pontriagin's control theory. These techniques and others clearly extend traditional Soviet planning methods ("the method of material balances"), both in theory and in practice.

Zauberman argues that mathematical economics has influenced the theory of Soviet planning more than its practice. Using mathematical methods, planners could introduce time as a factor of production, maximize multiple goals, and consider trade-offs; they could simulate expected outcomes for several policies and choose among variants. Some of these have been introduced in heuristic fashion, but most have not. The necessary complement to the introduction of mathematical techniques is the computer; Zauberman characterizes the change as a "jump from '5 fingers plus abacus' into the electronic era." Only the computer can cope with the mountains of data and the millions of computations. This critical requirement severely limits the applicability of mathematical economics to the realities of planning.

But the author believes that mathematical economics creates an ongoing revolution, a cognitive revolution, opening communication between Soviet and other scholars. It brings fresh viewpoints to outdated planners, because it introduces rational choice and scarcity prices (shadow or corporeal) into a system which had neither. All these are documented carefully by the author, especially from the journal *Ekonomika i matematicheskie metody*.