Consumer Characterology

Aspirations and Affluence. Comparative Studies in the United States and Western Europe. GEORGE KATONA, BURKHARD STRUMPEL, and ERNEST ZAHN. McGraw-Hill, New York, 1971. x, 240 pp., illus. $12.95.

The title and subtitle of this admirable little book just about describe its contents. The object of the study was to compare the people of the United States with those of some selected ("affluent") countries of Western Europe, in their behavior as consumers and in their attitudes toward work, leisure, and education. As it turns out, the book has a good deal to say about the United States and West Germany; rather less to say about Holland and the United Kingdom; and less still to say about France. But all in all, the comparative objective is achieved. Those who have tried to mount comparative studies in the social sciences will be especially aware that this is a formidable achievement, both in conceptualization and in execution, an achievement for which author Katona is apparently entitled to the lion's share of credit.

One reason for the relative success of the venture is Katona's relaxed approach toward the handling of his materials. From the beginning, he avoids the trap, so common in comparative studies, of insisting upon rigidly parallel study designs. He takes what he can find about the behavior of the people in different countries, using sources from Alexis de Tocqueville to Richard Eckaus (though he does overlook one of my favorite sources, Salvador de Madariaga's *Englishmen, Frenchmen, and Spaniards*). He splices these motley materials together with the use of some common questionnaires of his own on attitudes and values. And, presto, he produces some quite plausible and reasonably consistent vignettes for the countries concerned.

There will be the usual caviling from some quarters about the technical shortcomings of the work. There will be reservations about sample size, questionnaire timing, cultural transferability of the questions, and so on. But these are the characteristic complaints that greet most comparative studies. Those who specialize in studies of specific national economies, filled with a sense of the unique complexities of their own areas, often find it difficult to tolerate the hit-and-run intrusions of the comparativist into those areas. But the Katona team demonstrates once again that comparative studies have their place, provided one is sensitive about the weighting problems and the normalizing difficulties that are entailed in such comparisons.

The results themselves are often provocative, especially for example to the New Left. The United States emerges (as of 1968) as a country in which the majority feels it is better off than it used to be and expects to be better off still in the years ahead. The sense of well-being relates not only to income but also to job satisfaction. What is more, these rosy states are seen as the consequences of individual effort, though the degree of that perception is highly correlated with the level of education of the respondent. Neither Germany nor the United Kingdom reports so optimistic a view, either retrospectively or in prospect. Though job satisfaction is fairly widespread in Germany, the Germans emerge as relatively pessimistic and unaspiring in terms of their expectations both for themselves and their economy.

The authors see differences in expectation of this sort as being related to other characteristic differences among the countries. For instance, Germans of all income levels place heavy emphasis on personal savings and tend to eschew installment buying. Americans worry much less about mortgaging their future incomes through installment buying, and many do not even bother to save. There are some interesting tidbits of a less familiar sort, adding extra piquancy to the study. Though not much is said about the French, one does learn that they are widely dissatisfied with their education, much more so than comparable groups in other countries. One discovers also that the Germans waste considerable resources on narrow technical training of their youth which the recipients never get a chance to use. Women's Lib is given a few hints as well, such as the prospect that Holland and Germany will prove hard nuts to crack.

To those who profess to see a rapid convergence among the societies of the Western countries, the book will give pause. Convergence there does appear to be. The young and the better-educated are more like each other in the various countries than they used to be. But there are still great differences, many of them unrelated to income, occupation, or age. And many of these pervasive differences fit the national caricatures that a long line of earlier studies have prepared us to expect.

Books of this sort ought to be especially well indexed; this one falls a bit short in that respect.

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Chinese Science

The Organization and Support of Scientific Research and Development in Mainland China. YUAN-LI WU and ROBERT B. SHEEKS, assisted by Lawrence J. Lau and Grace Wu, under the direction and editorial supervision of Ralph J. Watkins. Published for the National Science Foundation by Praeger, New York, 1970. xxvi, 594 pp., illus. $17.50. Praeger Special Studies in International Economics and Development.

By all conventional economic standards China is still an underdeveloped country. Agriculture, which provides employment for upwards of 80 percent of the Chinese labor force, is still largely unmechanized and labor-intensive. China's steel production continues to lag far behind that of the major industrial nations of the West, indeed well behind that of her smaller Asian neighbor Japan. And in terms of per capita gross national product, the current Chinese figure of approximately $120 a year stands in marked contrast to the American figure of $5000. Yet China has already entered the exclusive thermonuclear club; Chinese satellites now circle the earth; Chinese IRBM's are operational; China's scientists were the first to synthesize insulin; and Chinese doctors were pioneers in the development of surgical procedures for rejoining severed human limbs. These are but a few illustrations of mainland China's developmental dichotomy: the existence of sophisticated, modern scientific research and development within an essentially premodern, peasant-based society.

China's scientific establishment—its historical growth, organization, training programs, financing, staffing, priority structure, and control apparatus—is the subject of this important and timely study. Wu and Sheeks have collected, sorted, and analyzed an impressive array of quantitative and qualitative data pertaining to scientific research and development in the People's Republic of China. Their findings help to place China's developmental dichotomy in its proper perspective.

Scientific R&D in China have clearly made impressive progress since

1949, when the communist regime first came to power. In part this progress is due to the great emphasis placed by the regime on both general and specialized educational expansion; in part it is due to the unique ability of a centralized system of political decision making to mobilize and channel human and material resources into high-priority developmental sectors.

The authors estimate that approximately 1 million full-time students were enrolled in China's higher educational institutions—primarily in the fields of science and technology—in 1964–65 (the last years for which adequate statistical data exist). This figure represents more than an eightfold increase over the figure for 1949–50. In this same 15-year period there was a tenfold increase in the number of professional scientific and technical personnel in China, from less than 10,000 to almost 100,000.

With respect to financial support for scientific R & D, the authors conclude that "on the basis of published data alone, the science budget is the fastest growing item in the Communist Chinese state budget." While the estimated overall state budget grew at an average annual rate of 16 percent from 1952 to 1965 (from approximately $7 billion to $17 billion), the science budget in the same period increased at an average rate of 117 percent (from $4.6 million to $625 million). Within the overall scientific R & D budget, the largest single item in recent years has been the nuclear development program, accounting for roughly 50 percent of all state investment in scientific activity. It is estimated by the authors that in 1960 the Chinese government employed approximately 2000 engineers and 750 scientists in its nuclear R & D program, with a like number employed in the production of materials for this program.

The major locus of scientific research in China is the Academy of Sciences, whose budget in recent years has accounted for approximately 20 percent of the total state budget for science. The Academy's 148 component central and branch institutes concentrate primarily on work in the three basic sciences and employ approximately 22,000 R & D personnel. Of the current (estimated) total of 100,000 to 200,000 persons engaged in scientific research and development work in China, approximately 50,000 are known to be employed in the higher education sector. Salaries of scientific R & D workers are estimated by the authors to range from $350 a year for a research assistant to $1250 for a senior researcher, with the mean for all scientific workers being approximately $500. (By way of contrast, the average factory worker in China earns between $200 and $250 a year.)

Turning to the question of research priorities, as measured by the contents of China's scientific journals, the authors note that published research in the life sciences (biology, medicine, and agriculture) accounted for 58 percent of the total scientific output for the decade 1950–60, with the engineering sciences accounting for 31 percent and the physical sciences (including mathematics) for 10 percent. The authors conclude, however, that such statistics may be somewhat misleading, since some research findings (most notably in nuclear science and other defense-related fields) are never published.

One of the more interesting questions to which the authors address themselves is that of the effects of China's Great Proletarian Cultural Revolution on the scientific establishment. While noting that virtually all institutions of higher education in China suspended operations for periods of from one to three years during the recent upheaval and that China's professional intellectuals (including some scientists) were a major target of Red Guard criticism, the authors conclude that the more sensitive sectors of Chinese science—particularly defense-related R&D—were consciously and effectively insulated from the most disruptive effects of the Revolution. In the long run, however, the authors believe that one important side effect of the Cultural Revolution may be the politicization of science, which they view as potentially deleterious since it may lead to "compulsory conformity imposed by the enshrining of Mao Tse-tung's thought, which is basically anti-scientific." This reviewer, while agreeing with Wu and Sheeks that the politicization of science in any country is in principle abhorrent, would question the criteria by which they judge Maoist thought to be antiscientific.

Arguing that China's impressive scientific achievements over the past two decades have been gained through the stressing of immediate returns of applied research at the expense of long-term pure research, the authors foresee the occurrence of a developmental bottleneck and predict that at least in some critical areas "the continuation of growth at past rates will be increasingly difficult." This is undoubtedly true; indeed, the long-term continuation of the growth rates of the 1950's and 1960's would be difficult under the best of conditions. Nevertheless, and despite the existence of a major developmental dichotomy in China, there can be no denying that Chinese science has "arrived."

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Technonature

Science et Politique. JEAN-JACQUES SALOMON. Editions du Seuil, Paris, 1970. 408 pp. Paper, 29 F.

It is difficult to render an honest assessment of a book written for a European audience by a European. But it is important to attempt an assessment when that book seeks to judge the significance of events and patterns that are largely Anglo-American in origin, and when the author's experience and background so uniquely lend themselves to the effort of synthesis. For the past ten years, Salomon has participated in the work of the Directorate for Scientific Affairs of the Organization for Economic Cooperation and Development. Since 1967 he has been Director of the Science Policy Division, and has guided the series of statistical and policy reviews of European and North American industrial nations conducted by that organization.

Salomon's perspective on science, technology, and public affairs is primarily historical and philosophical. This characterization applies to the intellectual perspective as well as to the organization of the book. The book has three major sections. In the first, he reviews the European origins of the relations between knowledge and power, choosing Bacon's *New Atlantis* as his point of departure and emphasizing the relationship of changing views of the utility of science to changing views of the function of government and definitions of the public interest. Needless to add, the impact of the French and Russian revolutions constitutes an important part of his analysis.

The second section deals with organi-