An Official Program

Guide to China's Science and Technology Policy, 1986. State Science and Technology Commission of the People's Republic of China. China Academic Publishers, Beijing, 1987 (U.S. distributor, Pergamon, Elmsford, NY). viii, 434 pp., illus. $130. White Paper on Science and Technology, no. 1.

China's White Paper on Science and Technology, issued by the State Science and Technology Commission, is a broad overview of the role of science and technology in China's ongoing modernization program. As might be expected in a document of this type, the approach is very much top-down—an examination of science and technology policy from the point of view of China's national-level Party and government organs. A large share of the space in the volume is given over to explaining the 15-year development program for science and technology covering the years 1986 to 2000. That plan, in turn, is the successor to three earlier long-term science and technology development programs drawn up and approved by the Party in 1956, 1963, and 1978.

What is surprising, however, is the almost complete disjuncture between this top-down approach to planning for science and technology and the rather far-reaching decentralization of decision-making currently under way in many critical sectors of the economy. The science plan not only identifies high-priority fields such as microelectronics, information technology, biotechnology, and new materials technology (discussed in general terms in the volume under review) but in a separate internal 27-volume study identifies hundreds of specific scientific and technological projects that will be undertaken in these priority areas as well as in important traditional industries. In short, while economic reforms are altering the production sector of the economy in China far more profoundly than in any other reforming socialist system, science and technology planning appears to be blithely proceeding very much in the centrally planned style borrowed from the Soviet Union in the 1950s.

The volume also reflects little movement away from the traditional view that scientific and technological improvements in some sense can serve as a substitute for even more far-reaching institutional changes in the economy. Thus the burden placed on science and technology is enormous. Technology policy is assigned the responsibility for increasing productivity in manufacturing, for raising the production of primary energy sources, for increasing the energy utilization rate, for improving the efficiency of air, water, and surface transport, for upgrading the quality and efficiency of the communications networks, for raising farm yields, for increasing the efficiency of land use in urban areas, for preventing water and air pollution, and so forth. Though the replacement of inefficient industrial boilers, water pumps, fans, and electric motors may provide a one-time saving in energy, it may not be as effective a mechanism for stimulating conservation as raising the price paid by industrial users of energy to something approaching its real cost. Similarly, as long as urban land is very substantially underpriced and allocated bureaucratically the prospects for utilizing it more efficiently through more scientific urban planning seem dim.

In essence the White Paper advances policy for science and technology in something of an institutional vacuum. It considers neither how the top-down approach is no longer appropriate to a more decentralized production structure nor how further institutional changes, for example in the price formation process, in the long run may be essential to achieving some of the goals of the science and technology plan.

The White Paper explicitly acknowledges the shortcomings of traditional policies but also reveals how much remains to be done to reform the institutional arrangements and approaches borrowed from the Soviets in the 1950s. The effective utilization of scarce scientific and technical manpower, for example, continues to be constrained by limitations on the mobility of personnel. Scientists and engineers are assigned to research institutes when they complete their formal academic training and seldom change jobs subsequently. The research institutes regard these personnel as their own property, and in the absence of labor markets individual mobility is extremely limited. The White Paper discusses reforms that have been under way for several years to increase the opportunities for individuals to move to more appropriate or preferred jobs, but the results have been disappointing. Only 3 percent of scientific and engineering staff are now able to change jobs annually, a comparatively low rate. International experience suggests that labor mobility is one of the main means of diffusing new technology. Much technical knowledge is embodied in human capital, so the development of a labor market for scientific and engineering manpower would improve the diffusion of technology throughout the economy, an area where China is particularly weak.

Similarly the White Paper describes an elaborate new system of certificates and cash prizes that the state is now awarding to inventors and scientific innovators. But it is silent on the major crisis that threatens further to alienate China's intellectual community from the State and Party. That is not the persecution of individual scientists who have called for reform of the Chinese Communist Party but the steady erosion of real living standards that stems from the combination of a rigid fixed wage structure for scientists and engineers and the more inflationary environment of the mid-1980s. The decline in the incomes of scientists and engineers relative to that of workers in other sectors of the economy, where the opportunities for commercial and entrepreneurial activities have widened steadily and real incomes have grown explosively, has been particularly corrosive.

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Institutions Transformed

The Care of Strangers. The Rise of America's Hospital System. CHARLES E. ROSENBERG. Basic Books, New York, 1987. x, 437 pp. + plates. $22.95.

The history of the American hospital was once portrayed as the story of a backward institution radically changed through medical and scientific advance. In recent years, this historiographic tradition has been augmented by histories that emphasize the role of communities, economics, politics, workers, and patients in the development of the institution. Charles E. Rosenberg has been instrumental in spawning the new history. His 1962 book *The Cholera Years* has served as a model of the social-history approach to medical subjects, and his subsequent articles on the American hospital have been critical in defining the issues that had to be addressed by historians of this central institution. Yet Rosenberg has always managed to integrate scientific change into his history, continuously illustrating the interrelationship of science and society, technology and social values, technical innovation and popular attitudes. *The Care of Strangers* continues in this vein.

Rosenberg begins by examining the internal order and administration of the antebel-