

Canadian equivalent of the Office of Management and Budget. Because parliamentary committees are considerably weaker than their congressional counterparts, the Treasury Board is, if anything, an even more powerful force in the determination of budgetary allocations than the OMB. Hayes is dubious about the ability of any nonscientist experts to decide on priorities in scientific research, but he is especially leery of the ability of the civil servants in the Treasury Board to make such decisions. As he puts his case, in a typically pungent remark, "Learning about natural science policy from economists and bureaucrats is like learning about love in a brothel; the lessons are clear enough but oversimplified."

Rather than trust in the bureaucrats and futurologists, Hayes would rely on what he thinks of as the old-fashioned laissez-faire approach decried by the Lamontagne committee. This approach would work by the method of successive approximations. It would emphasize respect for the views of distinguished scientists. And it would introduce a novel quasi-judicial forum for big science projects—on which the staff of the Treasury Board would presumably be disqualified from serving. These suggestions are not without merit, though Hayes is so haunted by the combined specters of Karl Marx and Franz Kafka that he doubts scientists will long remain free in Canada. Anyone who reads the Lamontagne report with a measure of detachment and consults the other recent books on Canadian science policy—G. Bruce Doern, *Science and Politics in Canada* (McGill-Queens University Press, 1972) and N. H. Lithwick, *Canada's Science Policy and the Economy* (Methuen, 1969)—will be likely to conclude that Hayes's worst fears are grounded more on his own vivid imagination than on the realities.

As these two books demonstrate, however, the question of how governments should support science remains subject to a surprising degree of uncertainty and confusion. Despite fairly long experience and much learned disputation, there is still wide disagreement about what needs to be done to balance the advancement of learning with the application of research and education to social needs. Could it be that this controversy is so fundamental as to resist consensual resolution?

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Progress in China

Medicine and Public Health in the People's Republic of China. JOSEPH R. QUINN, Ed. Fogarty International Center, Bethesda, Md., 1973 (available from the Superintendent of Documents, Washington, D.C.). xii, 334 pp. \$2.45. N.I.H. 73-67. Geographic Health Studies.

Public Health in the People's Republic of China. Proceedings of a conference, Ann Arbor, Mich., May 1972. MYRON E. WEGMAN, TSUNG-YI LIN, and ELIZABETH F. PURCELL, Eds. Josiah Macy, Jr. Foundation, New York, 1973. x, 354 pp., illus. Paper, \$7.50. Macy Foundation Series on Medicine and Public Health in China.

Modern China and Traditional Chinese Medicine. Proceedings of a symposium, Madison, Wis., Apr. 1972. GUENTER B. RISSE, Ed. Thomas, Springfield, Ill., 1973. viii, 168 pp. \$8.95.

Medicine and Society in China. Report of a conference, New York, Mar. 1973. JOHN Z. BOWERS and ELIZABETH F. PURCELL, Eds. Josiah Macy, Jr. Foundation, New York, 1974. viii, 176 pp. Paper, \$7.50. Macy Foundation Series on Medicine and Public Health in China.

The Amazing Story of Health Care in New China. K. K. JAIN. Rodale, Emmaus, Pa., 1973. viii, 184 pp., illus. \$6.95.

Serve the People. Observations on Medicine in the People's Republic of China. VICTOR W. SIDEL and RUTH SIDEL. Josiah Macy, Jr. Foundation, New York, 1973. xiv, 318 pp., illus. \$10. Macy Foundation Series on Medicine and Public Health in China.

Peking is justly proud of the outstanding progress China has made in the health field, and much publicity has been given to these achievements by the Chinese news media. Because medicine is the most universal of sciences and because China is eager to make its accomplishments known to the outside world, members of the medical profession have constituted a disproportionate number of all visitors to China during the past few years. It is not surprising, therefore, that much of what the American public has heard and read about China has come to them through the eyes of physicians and biomedical scientists and that much curiosity on the part of both professionals and laymen has centered on

public health, on medicine, and, of course, on acupuncture. The six books under review here are both causes and results of the remarkable interest in these subjects; they should satisfy the curiosity of some and will only stimulate that of others.

Four of the books are collections of papers on various aspects of health and medicine in China—most of them presented or submitted just after President Nixon's week of negotiations with Premier Chou En-lai in February 1972 and before their agreement to facilitate the development of scientific, technological, and cultural exchanges had time to be implemented. Consequently, relatively few of the almost 40 contributors to these publications (some of them with papers in more than one of the books) had yet been to the People's Republic of China; this does not detract from the validity of the commentaries. Despite the inevitable variations in quality in any collection of articles, the analysis is generally sound, the topics are handled well, and the reader should get an accurate picture of how the Chinese managed to improve the health of the population and of how the public health system is currently functioning.

The volumes edited by Quinn and by Wegman, Lin, and Purcell are very similar in coverage. Both include something of the history of medicine and public health, Chinese traditional medicine, the organization and delivery of health care, the control of infectious and parasitic diseases, nutrition, and other basic health topics. The volume edited by Risse discusses some of these topics, but more than a quarter of the effort is devoted specifically to acupuncture and particularly to acupuncture anesthesia. Almost two-thirds of Bowers and Purcell's volume deals with the pre-1949 period, but the selected topics are all relevant to China's contemporary health policies and problems, which are presented and discussed in the last third of the book. Useful perspective is provided by the interdisciplinary background of the participants, and the informal presentation makes for easy reading.

Since the completion of the papers, many of the contributors have had an opportunity to visit China as members of various scholarly delegations and undoubtedly they could now supplement some of their conclusions with firsthand observations, but it is most unlikely that they would drastically change anything they said in their papers—a true measure of the soundness of their initial analyses. On the other hand, their efforts prior to their trips to describe the developments in China on the basis of published materials released by Peking surely made them much better observers and made their visits much more profitable.

The two remaining books are more personal accounts of visits to China, but this is where the similarity between them ends. Jain's first-person-singular record of his visit as a medical member of a multidisciplinary group from Canada early in 1971 is, in a sense, characterized by its title: *The Amazing Story of Health Care in New China*. The story is amazing indeed, but it would have come over a little better if it had been related with a little more sophistication. In this short book, illustrated by his photographs, Jain briefly touches on everything from major surgery to Chinese eating habits and somewhat naively and literally presents the Chinese view of Chinese health care.

The book by the Sidels, he a physician and she a psychiatric social worker, is a much more serious effort. Following their two trips to China, in the fall of 1971 and a year later in 1972, the Sidels have added China to their careers and have devoted much time to the study of the country and the new society. Their book reflects this background, so necessary to the interpretation of any aspect of the Chinese scene, and their personal observations are supplemented by many primary and secondary sources relevant to the subjects they cover. Although some of the specific topics are dealt with more fully in the collective volumes, the single effort results in a more readable text and a good overview of public health and medicine in China for anyone interested in the subject.

Although the six books may differ in coverage, emphasis, and thoroughness, the basic story they tell is almost identical, with only minor differences in interpreting how a country with notoriously deplorable health conditions was transformed into one that now stands as a model of health care for so

many less developed countries. China's attack on disease and poor health was multifarious, but several major principles or approaches can be identified—all of them reflecting practical considerations that match China's goals and resources.

The first decision made by Peking was that the major emphasis was to be placed on preventive rather than curative medicine. This was an essential and obvious first step. Literally hundreds of millions of people were organized and motivated to clean up the country, learn about elementary sanitation and personal habits of cleanliness, and participate in massive inoculation drives and other health- and environment-related activities. These massive efforts were directly responsible for the rapid elimination of the most dreaded diseases, such as cholera, typhoid, scarlet fever, and bubonic plague, and the three most prevalent social diseases, tuberculosis, trachoma, and venereal disease. Another priority was the elimination or control of parasitic diseases that affected the health and lives of a large segment of the population. Although not completely eliminated, schistosomiasis, malaria, hookworm, and other parasitic diseases no longer pose a serious threat to the population. It is important to note that the emphasis on prevention has not diminished with the improved health conditions. The slogan "prevention is predominant" is just as true now as it was 20 years ago, and every locality in China continues to have at least one general clean-up campaign every year.

Another basic factor in Chinese health, discussed in each of the books, is the role of Chinese traditional medicine. Over the years the regime has persisted in its efforts to raise the stature of traditional medicine, integrate it with Western medicine, and fully utilize it in the national health program. Once again, this was a very practical position for China to take. Mao Tse-tung was well aware that the time and cost involved in providing a population of over 600 million with Western medical services and facilities would be beyond China's capabilities. On the other hand, the half-a-million or so medical practitioners and herbalists of various degrees of competence, using empirical remedies such as acupuncture, massage, and abundant local herbs, could continue to serve the people as they always had and at a minimal cost to the central government.

The problem was to organize these heterogeneous and scattered individuals within a viable delivery system, improve their competence, and have the skeptical Western-trained physicians accept them as colleagues. To break down the resistance of the medical professionals, to add to the stature of native medicine, and to force integration, a requirement was introduced in the mid-1950's that all doctors of Western medicine study Chinese traditional medicine. The enthusiasm with which this and other measures designed to facilitate the integration of the two medical systems were pursued fluctuated over the years, and because of the overwhelming problems the melding of Chinese and Western medicine continued to be very superficial and spotty until the Cultural Revolution. The additional emphasis provided by the Cultural Revolution further elevated the role of traditional medicine, and the new graduates from medical schools are much more likely to reflect the two schools in their practice of medicine.

Each of the books devotes considerable attention to medical training. In order to increase health manpower as rapidly as possible, medical education was established at different academic levels and supplemented by large numbers of paramedics trained in a variety of part-time and spare-time medical courses. In this way China trained a large body of personnel capable of providing the people with primary health care. The Cultural Revolution, which closed schools for almost four years, introduced some drastic changes in China's medical education, particularly at the university level. The duration of higher medical education was reduced to three years; the curriculum was changed to incorporate traditional Chinese medical practices and insure that each student would spend a significant proportion of his time in practical work in the hospitals and clinics; students were to be enrolled from worker, peasant, and soldier backgrounds, and each was to have spent at least two years working in a factory or on a farm before being admitted to college; initially all examinations were abolished, but some form of testing has been resumed, though it continues on shaky ground. These changes have predictably created many problems, and the Chinese are quick to point out that education is still "in a state of flux" and that additional changes are entirely possible in the years to come.

Despite the impressive progress made in the health care of the Chinese population, a very significant gap continued to exist between the personnel and facilities that served the urban population and those that served the rural population. Since the Cultural Revolution the regime has made a special effort to narrow this gap, and hundreds of thousands of medical personnel, from paramedic to doctor, were sent down to the countryside to improve the health care of the peasant population. As part of this emphasis on rural health, the normal teaching functions of medical colleges have been expanded to include the training of paramedical personnel in the communes and villages. Every medical college has established rural teaching centers in the communes and has sent out mobile medical teams not only to supplement rural health care but also to offer short-term medical training courses. In this way good teachers are made available for the training of rural medical manpower at the same time urban-based professors receive political reeducation by living and working with peasants for several months every year.

The Sidels have the most complete description of how health care is organized and delivered in both the rural and the urban sectors of the society. One of the fundamentals of the system is that it works on a referral basis. Each problem is first handled at the lowest possible level of medical competence. Thus the paramedics in the street health centers or the village health rooms take care of most of the routine ailments, maintain local health records, provide vaccinations, and are intimately involved in various aspects of education, from daily sanitation to the planning of births. They are assisted by numerous part-time health workers who keep an eye on the health of their neighbors and the sanitation of the homes and the streets. When cases come up that are beyond the capabilities of the paramedics they are referred up the line of competence. In this way the more seriously ill individuals finally come under the care of the better-trained and more experienced doctors at the county or city hospitals. The advantages of such a system in a country with a limited pool of higher medical manpower are obvious.

Although there is probably more information coming out of China on public health and medicine than in any other single field, there are still many

questions that cannot be answered. In some instances the Chinese are reluctant to respond; in others—especially where quantitative data are concerned—they simply don't have the answers. No doubt with continued contact between the scholarly communities of China and the United States more and more information will become available, and in years to come we may even discover how many doctors there are in China. For the time being, however, the books reviewed here should adequately fill a void that has persisted for too many years.

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The Japanese Worker

Management and Worker. The Japanese Solution. JAMES C. ABEGGLEN. Sophia University, Tokyo, in cooperation with Kodansha, New York, 1973. 200 pp. \$12.

British Factory—Japanese Factory. The Origins of National Diversity in Industrial Relations. RONALD DORE. University of California Press, Berkeley, 1973. 432 pp., illus. \$11.75.

Japanese Blue Collar. The Changing Tradition. ROBERT E. COLE. University of California Press, Berkeley, 1973. xiv, 300 pp. Paper, \$3.45. Reprint of the 1971 edition.

Japan's rise to the status of economic world power within two decades has generated great interest in the institutional framework and the policies through which this miracle was achieved. The facts of the rise are well known and impressive: for example, the output of crude steel increased from 7.6 million tons in 1953 to over 100 million in 1973; automobile production went from 8500 (imagine!) to more than 4 million, and production of ships from 412,000 gross tons to nearly 13 million. The gross national product of Japan at present is exceeded only by that of the United States and of the Soviet Union, and figures from the Organisation for Economic Cooperation and Development suggest that in GNP per capita Japan may already have surpassed Great Britain and Italy.

Much less is known about the system of employment and labor relations that has accompanied the growth process. From occasional news stories one gets such notions as that there is a lifetime job guarantee for every worker in

Japan; that trade unions there never call a strike, except perhaps for one day each year, and cooperate enthusiastically with management in the interest of increased productivity; that Japanese workers know their place; in short, that it is a manager's Nirvana. It sounds too good to be true, and in fact, it is not true, as two of the three books under review make clear.

Abegglen's *The Japanese Factory* was a pioneering work when first published in 1958, and has been responsible in considerable measure for much of the mythology about the Japanese labor market. His present volume is a reprint of the earlier work with some deletions and additions, including an introductory chapter in which the "efficiency, peace, and harmony" of Japan are contrasted with the "enormous economic costs of strikes that have proved so devastating to the economies of Europe and the United States" and "the terrible economic costs of trade unions to Western economies." All this is simply asserted without any effort at substantiation. The book is important historically but is not of much use for an understanding of contemporary Japan.

The books by Dore and Cole, on the other hand, are compulsory reading. They agree on basic facts. Since the early 1950's almost all large Japanese firms have hired most of their new employees, blue and white collar alike, right out of school, and they evidently mean to keep them on the payroll until retirement at age 55. But this system of "lifetime commitment" is by no means universal. Outside the favored enclave are employees of the numerous small firms found in the Japanese economy, substantial numbers of temporary workers hired by the large firms as such, employees of the many subcontractors working for the major firms, and most women workers. The rate of industrial growth has been so rapid and steady that whatever occasional need there may have been for retrenchment in the labor force could be satisfied by laying off members of these groups.

To a considerable extent, earnings increase with age, although the ability factor is coming to have greater weight in wage determination. As for labor organization, there is normally a single trade union for each firm, with membership extending to all employees except middle and top management—white as well as blue collar workers,