starved areas of the world where solar energy is abundant. Distillation of seawater is one of the most promising applications of solar energy. The primary difficulty constantly encountered with respect to the utilization of solar energy is the large collection area required, the construction of equipment to cover such an area, and the subsequent maintenance of the equipment. The areas of the world where the use of solar energy can be an economical proposition are obvious, the applications—for example, in distilling water, heating homes, and cooking—are evident, and the difficulties confronting researchers are known. However, many new avenues of research, particularly of chemical research, exist where a dramatic advance would greatly change the outlook. It could readily be that the plant scientist will clearly excel the engineer in the utilization of solar energy available on a per capita basis for most of the world.

A few of the topics to which chapters are devoted include the history of the subject, a description of solar energy and its distribution, collectors, cooking, heating water, heating buildings, the distillation of water, solar furnaces, cooling and refrigeration, thermoelectric, photovoltaic, and photochemical conversion, and the storage and transportation of power. The well-bound book, with a garish cover of "sunlight" yellow, a comfortable print on good paper, and halftones on glossy paper, represents a pleasing contribution to the literature on solar energy. It is a fine summary of the research and applications to date, and it should be read by layman and scientist alike. Daniels is to be congratulated.

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Education, Manpower, and Economic Development

Manpower and Education: Country Studies in Economic Development. Frederick Harbison and Charles A. Myers. McGraw-Hill, New York, 1965. xiii + 343 pp. $9.

This volume contains the background studies for *Education, Manpower, and Economic Growth* by the same authors [reviewed in *Science* **145**, 917 (1964)]. Following a brief introduction, there are analyses by 11 other authors of the history, current status, trends, and problems of planning for improvement in the education and utilization of trained manpower in Argentina, Peru, Chile, Puerto Rico, Iran, Indonesia, Communist China, Senegal, Guinea, the Ivory Coast, Nyasaland, and Uganda. A final chapter contrasts manpower issues in East Africa and Southeast Asia. Each chapter (except the one about Communist China) was written by an American social scientist who has spent considerable time working on manpower and education problems in the country of which he wrote.

The nature and amount of information available about the countries varies, and so, necessarily, do the coverage and treatment. In general, each country (except Senegal, Guinea, and the Ivory Coast, which are treated together in one chapter) gets about 30 pages. The analyses are praiseworthy, but each author must often have wished for better data. There is no index.

Foreign aid programs and plans for economic development depend for their success upon many factors. Certainly among these factors must be included the knowledge that the planners and administrators have of the resources, economic conditions, educational status, cultural setting, and the motivation and organization of the country involved, and a sense of the fitness or appropriateness of a particular program or activity to the setting and stage of development into which it is being introduced. A reader interested in a particular country will find a certain amount of information about that country (if it is one of those included) and, with due caution because of the substantial differences, may also be helped by learning about some of the things that have been tried, how goals have been met, what obstacles have been encountered, and what suggestions can be drawn from experience in other countries. In the introduction, Harbison and Myers summarize a number of major principles of economic planning that emerge from the diverse experience they and their chapter authors have had in working in many countries.

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Science, Technology, Society

Science as a Cultural Force. Edited with an introduction by Harry Woolf. Johns Hopkins Press, Baltimore, 1964. x + 110 pp. $3.95.

This book consists of four essays originally delivered as the Shell Companies Foundation Lectures on Science, Technology, and Society at Johns Hopkins University. Two of the lecturers, James R. Killian, Jr., and Jerome B. Wiesner, who have been intimately associated with governmental activities in science and technology, deal with the outer, public life of science and technology; the other two lecturers, Michael Polanyi and Gerald Holton, deal with the inner, private world of scientific thought.

Both Killian and Wiesner have already expressed in other lectures and publications many of the points that they make in this volume, but the points are important enough to merit restatement, and here they are concisely and well put. Killian's essay, "Toward a research-reliant society: Some observations on government and science," stresses the growing importance of the "innovation industry" (research, development, test, and evaluation) in our national life. He is properly concerned with the government's role as the dispenser of funds for science, with the methods of handling scientific research conducted under governmental auspices, and with the problem of scientific advice to policy makers. Because the flourishing state of American science might lead us to relax our efforts and might tend to obscure areas of weaknesses that may develop in the future, Killian stresses the need to review our present practices and establish future goals so that the innovation industry can continue in its role as one of the "principal energizers of our society."

In his essay, "Technology and society," Wiesner gives handy guidelines for judging public investment in science and technology: "Technological development should only be undertaken to fulfill specific needs, and only if the proposed new development gives promise of being economically justifiable as well as technically sound. Basic research should be judged primarily on scientific merit and supported at a level which permits all meritorious work if available funds permit." He then proposes an annual budget of $1 billion for the productive allocation of R&D funds, with the major items ($100 mil-