on world population growth and its relation to resources and technology and to space and culture. There follow articles on eugenics and euthenics and on the current status of contraception, abortion, and sterilization. The next three articles cover the evolution of Catholic and Protestant views of population control and the population policies in Communist countries. There are then three articles on population control in underdeveloped areas in general, and in Puerto Rico and India in particular, with an intervening article by two economists attempting to interpret population control in Japan. The volume closes with a discussion of legal and political aspects of population control in the United States and with a speculative discussion of the relation between population growth and the tendency toward less individualistic, more highly organized, and even authoritarian political institutions.

This book is less unified than the other two, as is to be expected of a symposium publication. It is also more scholarly, and it brings together a useful collection of thoughtful papers that are very informative on many of the key issues that population poses for our society.

Big Leap Forward

Sciences in Communist China. A symposium presented at the New York Meeting of the AAAS, 26–27 December 1960. AAAS Publication No. 68. Sidney H. Gould, Ed. The Association, Washington, D.C., 1961. xii + 872 pp. Illus. Members, $12; others, $14.

It is not inconceivable that historians of the future may consider the emergence of China as a major industrial power to be the most important development of the second half of our century. After a sleep of many centuries and an uneasy awakening, the giant is now flexing his muscles while the rest of the world is beginning to watch. Since 1949 the number of Western scientists who have visited China has not been large, and much of the published information on scientific and technical progress is only available in Chinese. The decision of the National Science Foundation and the American Association for the Advancement of Science to hold, in December 1960, a symposium on the present state of science in China was a most timely one. The present book contains the 26 lectures given at this meeting, and the AAAS as well as the editor must be congratulated on having brought out this volume packed with topical information within 6 months of the symposium.

There are five sections, dealing respectively with the social sciences, biology and medicine, the earth and the atmosphere, mathematics and physics, and finally engineering and electronics. All the authors have gone to a great deal of trouble in trying to piece together from papers and articles an image of the state of their subject in China. On the whole they have succeeded remarkably well, presenting, in the natural sciences and engineering at least, a consistent and convincing picture of rapid progress from a state of great backwardness. This progress has not anywhere caught up with science and technology in the West or in the Soviet Union, but there are many indications that the next 10 years will see this happen in some fields. In view of the agricultural character of China, the chapter on this subject is particularly interesting, and so are the references to the position of traditional Chinese medicine and pharmacology in relation to Western developments, which are introduced side by side. Altogether the reader has the impression that he is being given a fair and unbiased account of what is happening in China.

Such an account becomes more difficult when the relations between science and politics are discussed, and for this reason the section on these aspects of the problem is not generally as satisfactory as that on the natural sciences. I, for one, would find it difficult to agree with some of the gloomy conclusions drawn by Theodore Hsi-en Chen on the effect of "indoctrination" on scientists. Only one of the authors, J. T. Wilson, a Canadian geophysicist, has visited China in the last 10 years, and his impressions, which appear to be similar to my own, contrast strongly with Chen's opinion. Wilson says: "I was agreeably surprised by what I saw in China. The government clearly believes in and supports education and science. Many scientists from the old regime had remained. Although overworked, they have never before had so much support."

The ample and solid information given in the present book will go a long way toward bringing the work of the Chinese scientists to the notice of their Western colleagues. It can be strongly recommended to all who are in search of facts and source material on the sciences in China.

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Nucleic Acids

Polynucleotides. Natural and synthetic nucleic acids. Robert F. Steiner and Ronald Beers, Jr. Elsevier, Amsterdam; Van Nostrand, Princeton, N.J., 1961. viii + 404 pp. Illus. $17.

In an area of research where significant results appear with great frequency, specialized monographs are exceptionally useful not only to research participants but also to those spectators who wish to delve more deeply into a particular subject. Steiner and Beers have written such a book in their *Polynucleotides*, which is a detailed and authoritative account of a number of topics in the field of nucleic acids. The choice of subject matter was evidently dictated in considerable part by the research interests of the authors, which include the enzymology and macromolecular physical chemistry of the polynucleotides. To extensive discussion of these topics, chapters on the chemistry of nucleotides, their linkage in polymers, and the biological role of nucleic acids have been added. Almost everything the authors selected is treated in a most perceptive manner. The chapters on the macromolecular properties of the polynucleotides constitute the best and most up-to-date review of this subject available at this time, and this topic follows upon a most detailed description of the enzymology of polynucleotide phosphorylases. Only the final chapter, on the function of deoxyribonucleic and ribonucleic acids, is somewhat sketchy and not quite up to the high standard set by the rest of the book.

Practically all items in the bibliography refer to articles that appeared before 1960. The subsequent 18 months have seen a number of important developments related to the physical chemistry, biosynthesis, and function of nucleic acids, so there is already a need for substantial additions to a number of the topics discussed. However, very

little the authors have written here would need to be withdrawn.

It is regrettable that an otherwise admirable book should be marred by an abundance of typographical and other minor errors. If this slipshod editorial work effected any economies in manufacture, they do not appear to have been passed on to the public.

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New Realms

Plant Marvels in Miniature. A photographic study. C. Postma. John Day, New York, 1961. 173 pp. Illus. $12.50.

This handsome book, addressed to botanist and layman, consists mainly of 77 beautiful large photographs of botanical subjects, at magnifications of 2½ to 3300. Some are of microscope preparations of a type familiar to students in elementary botany, some of familiar plants in unfamiliar views and unfamiliar detail. All are technically excellent, and all reveal a beauty likely to be overlooked in such familiar objects viewed casually in natural size and undoubtedly overlooked as well by many reluctant students at microscopes, and even by some professors.

At the foot of each facing page are one or two or a dozen sentences of explanation and comment. Although this brief commentary cannot completely explain every intricate structure to someone with no background in botany, it can be for him a brisk course in botany and for others a stimulating review, mostly understandable to the novice and mostly factual, though here and there tinged with teleology. Such technical words as appear are mostly made clear by the context; a few could be omitted with no loss, and a few are not the terms commonly used. If the text is not of the same high quality as the photographs, it is still generally good; and this is primarily a book of photographs.

The plates are in ten groups called with slight artistic license, the structure of the plant, about grasses, the flower, spread of the seed (see cover of *Science*), the leaf, hairs of the plant, the stalk, wood, the root, and parasites. An intriguing group, for example, is the first, a series of four plates, at increasing magnifications, of a spiderwort (*Tradescantia*): first a flower (× 7), next a stamen with its many slender hairs (× 20), then a few of these hairs, like strings of beads (× 175), and finally a single cell of a staminal hair (× 1100). Thus, effectively, the reader is brought at the start to a good starting point, the cell.

The author is a Dutch physician for whom plant photography has been a hobby for many years. At the back of the book are brief general notes on his photographic equipment and techniques and the data for each photograph. The short appreciative foreword is by Edwin Way Teale.

Altogether, this is a beautiful book that may arouse an interest in botany in some who lack it and should enhance the appreciation of the beauty of plants in botanists and nonbotanists alike. The laboratory in elementary botany could well have a copy at hand.

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Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Arctic Aeromedical Laboratory. **Reports.** AAL TR 61-8, "An evaluation of an electronic location marker (SARAH) for arctic use," Glenn M. Stanley and J. M. Quashnock, 36 pp. AAL TR 57-22, "Point Hope, an Eskimo community in northwest Alaska, James W. Vanstone, 166 pp. The Laboratory, Fort Wainwright, Alaska, 1961.

Canada, National Research Council. **Review of the National Research Council, 1959.** Committee of the Privy Council on Scientific and Industrial Research. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1959. 337 pp. $0.75.

Florida State Museum. **Bulletin, Biological Sciences.** vol. 6, No. 1. "Postcranial osteology of the waterfowl," Glen E. Woolfenden, 129 pp., $1.60. vol. 5, No. 7, "Subfamilies, genera, and species of Phytoseiidae (Acarina: Mesostigmata)," Martin H. Muma, illus., 34 pp., $0.50. Univ. of Florida, Gainesville, 1961.

Geophysics Research Directorate. AFCRL 637, **Annual Report, 1960**, 250 pp. AFCRL 468, **Air Force Surveys in Geophysics**, No. 134, "Area-dosage relationships and time of tracer arrival in the Green Glow Program," William P. Elliott, R. J. Engelman, and Paul W. Nickola, 35 pp., 1961. AFCRL-TR-60-280, **Geophysical Research Papers**, No. 71, "The chemistry and vertical distribution of atomic nitrogen in the upper atmosphere," Lewis E. Miller, 470 pp., 1960; No. 72, "A study of the pulsating growth of cumulus clouds," Charles E. Anderson, 147 pp., 1960. **Air Force Surveys in Geophysics**, No. 131, "An investigation of symbol coding for weather data transmission," Philip I. Hershberg, 41 pp., 1960. The Directorate, Air Force Cambridge Research Center Laboratories, Bedford, Mass.

Great Britain, Department of Scientific and Industrial Research. **Fuel Research 1917–1958,** 127 pp., $2.80. **Water Pollution Research, 1960**, 128 pp., 7s. Her Majesty's Stationery Office, London, 1960.

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World Meterological Organization. **Annual Report.** The Secretariat, WMO, Geneva, Switzerland, 1960. 141 pp. Illus.