Control of the Plant Environment. Proceedings of the University of Nottingham Fourth Easter School in Agricultural Science, 1957. J. P. Hudson, Ed. Academic Press, New York; Butterworths, London, 1957. xvi + 240 pp. $7.50.

This book is divided essentially into three parts, with discussions by a number of English and Dutch scientists who have carried out work on the control of plant environment. The first part discusses experimental results, especilly those concerning effects of temperature and light on a number of plants, such as peanuts, chrysanthemums, irises, lettuce, and grasses. The second part contains an excellent discussion of a number of the factors which have to be taken into account in the construction of controlled environment facilities. The chapter by Morris, particularly, should prove most useful to any designer of plant-growth rooms; it includes an excellent analysis of lighting problems. The third part provides descriptions of installations which are in existence. Particular emphasis is laid on the different installations which are at the moment in existence in England. However, in most cases no performance data are supplied, and it will therefore be difficult for prospective designers to choose from the multitude of types of construction principles.

This book is quite timely because of the enormous recent increase in interest in studies on the effect of environment on performance of plants. These studies can be divided into two distinct groups. In the first place, control of the environment is essential in any careful study of plant behavior. To achieve this control, individual growth chambers are essential, and these have been constructed in fairly large numbers in England, as is seen from this book. In addition, there are problems in ecology, climatology, and especially in the applied botanical fields, where research requires a whole set of controlled environment rooms and greenhouses, covering the complete range of growing conditions, such as a phytotron provides. Several such installations are described briefly in this book, too.

F. W. Went
Department of Biology,
California Institute of Technology

The Planet Venus. Patrick Moore. Macmillan, New York, 1957. 132 pp. Illus. $3.

As Patrick Moore states in the foreword, his book, *The Planet Venus,* is the first full-length volume ever to be devoted entirely to the general problems of that intriguing planet. In contrast, several score of books have been written about our other planetary neighbor, Mars.

The reason for this scarcity will be obvious immediately to any reader. Since almost nothing is actually known concerning the physical conditions on the planet and in its atmosphere, the author was able to give adequately, in scarcely 100 pages of text, all of the currently accepted scientific facts and conjectures about Venus, as well as much of the relevant observational and theoretical history.

This work is directed primarily toward the amateur astronomer. The book is very readable, with a distinctly British flavor. The author assumes no previous scientific knowledge on the part of the reader, and hence the material can easily be understood by any person over the age of 15. In addition, the very complete bibliography, fully up to the standard for bibliographies of technical papers in a scientific journal, will be useful to the professional astronomer as well as to the amateur.

Patrick Moore is well qualified to write about Venus. He has been a student of the planet for many years and, since 1955, has directed the Mercury and Venus Section of the British Astronomical Association. Much of the material he presents is necessarily highly conjectural, and the author therefore inevitably injects his personal convictions. Fortunately, he is careful to point out his opinions as such, in cases that might lead to considerable controversy among present-day astronomers. In several other instances his words are so strongly positive that they are unmistakably statements of opinion—although in these cases his opinion is usually shared by all present-day planetary astronomers. For example, on page 62 he writes, "Let us now turn to the celebrated linear streaks or 'canals,' which have been recorded on many occasions but which do not in fact exist at all," and on page 39, "This point of view is obviously unsound. If carried to its logical conclusion, we might well observe Venus with the naked eye and dispense with telescopes altogether!" Nowhere, however, has the author stated opinions with which I basically disagree.

A few minor omissions and errors may be mentioned. On page 60, for instance, the author states that an axial tilt of 85° would leave a loophole for shorter rotation periods of about 24 hours, since no Doppler shift could then reveal itself, thus overlooking the fact that even then the earth would at times be above Venus' equator, and that observations could easily be planned to eliminate this possibility. On page 80 he might have referred to the brief history of the earth's atmosphere given on pages 108–109 and on page 113. On page 16 a typographical error ("circle of 'epicycle' " should read "circle or 'epicycle' ") could easily confuse the novice. Reference on page 70 to a nonexistent "frontispiece" is probably also a typographical error; the plate referred to is plate 1, facing page 32.

The book, of course, was written too early to include the recent observations indicating that Venus is a radio source. It does refer to the possibility of radar observations of Venus.

It is perhaps unfortunate that the author included no reference to the extensive literature dealing with observations of the transit of Venus on 9 Dec. 1874. Although, as the author points out, these observations were useless for their intended purpose, they were nevertheless interesting as they related to Venus' atmosphere; for example, the very nicely illustrated book by H. C. Russell, government astronomer of New South Wales, Australia, describes in great detail the effects of the "Cytherean" atmosphere on the Australian transit observations.

On the whole, this book impressed me very favorably. It is a "must" for anyone who wishes to make a serious study of Venus.

Robert J. Davis
Smithsonian Astrophysical Observatory

Strategic Surrender. The politics of victory and defeat. Paul Kecskemeti. Stanford University Press, Stanford, Calif., 1958. ix + 287 pp. $5.

This thoughtful book is first of all a study of the Allied policy of unconditional surrender in World War II, but it is more than that. It is a study of the general concept of surrender and of the strategic principles governing it. And it has implications extending beyond the situation that may exist at the end of a total war. It has implications, for example, for what can be expected from negotiations with the Russians in a period of nuclear stalemate.

Kecskemeti, a political analyst with the Rand Corporation, starts by noting that total victory in war can be achieved either by completely overrunning and disrupting the enemy or by his surrender. The enemy, by surrendering when his forces are still intact but when the outcome is no longer in doubt, saves himself and the victor the last painful costs of further fighting. Since the outcome of further fighting is known, the loser cannot hope, by negotiations, to control the terms of surrender. But his residual power to inflict costs on the victor makes it equally a mistake to assume that his bargaining power is nil and to refuse to treat with him. Furthermore, it is often to the victor's advantage to preserve a constituted authority in the enemy territory capable of carrying through the

terms of the surrender rather than to create a vacuum by refusing anything to the loser short of his total collapse.

These conclusions are supported by an analysis of Allied policy of unconditional surrender in World War II. In Italy the Badoglio government was ready to turn the nation's fighting forces against the Germans. The Allies refused to discuss such matters, and confined relations to repeated demands for unconditional surrender—that is, the dissolution of the forces which could have provided some resistance to German occupation. The delays resulting from Allied policy permitted German occupation of Italy, requiring its costly conquest, mile by mile. In Germany the Allied policy made less difference since Hitler, like the Allies, preferred his total military annihilation to negotiated surrender. In Japan the Allies in reality, though not in form, abandoned unconditional surrender, agreeing to the rule of the Emperor to avoid the costs of invasion. Had the Allies been willing to negotiate on this basis earlier, surrender might have followed immediately upon the defeat of Germany, and the use of the A-bomb and Russian entry into the Far Eastern war might have been avoided. These are some of Kecskemeti's points.

The last chapter of the book draws implications for the situation in which each side has power to unleash thermonuclear destruction in desperation on the other, even though this may not avert defeat. The implication is that in such a nuclear stalemate the "political payoffs must be moderate. . . . Imposed terms cannot reasonably be expected to be other than lenient."

ITHIEL DE SOLA POOL
Center for Advanced Study in the Behavioral Sciences, Stanford, and *Massachusetts Institute of Technology*

New Books

Teoria della relativita. Wolfgang Pauli. Boringhiere, Turin, Italy, 1958. 341 pp. L. 3000.

Actions chimiques et biologiques des radiations. Les peroxydes organiques en radiobiologie. R. Latarjet. Masson, Paris, 1958. 156 pp. Paper, F. 2800; cloth, F. 3600.

Dictionary of Physics and Allied Sciences. vol. I. German-English. Charles J. Hyman, Ed. Ungar, New York, 1958. 671 pp. $9.

The Promise of Modern Life. An interrelational view. D. W. Gotshalk. Antioch Press, Yellow Springs, Ohio, 1958. 128 pp. $2.50.

A History of Technology. vol. IV, *The Industrial Revolution, c1750 to c1850.* Charles Singer, E. J. Holmyard, A. R. Hall, Trevor I. Williams, Eds. Clarendon Press, Oxford, England, 1958 (order from Oxford Univ. Press, New York). 761 pp. $26.90.

Mathematics of Physics and Modern Engineering. I. S. Sokolnikoff and R. M. Redheffer. McGraw-Hill, New York, 1958. 819 pp. $9.50.

Aircraft and Missile Propulsion. vol. I of *Thermodynamics of Fluid Flow and Application to Propulsion Engines.* M. J. Zucrow. Wiley, New York; Chapman & Hall, London, 1958. 538 pp. $11.50.

Neuropathology. J. G. Greenfield, W. Blackwood, A. Meyer, W. H. McMenemey, R. M. Norman. Arnold, London, 1958. 640 pp. $20.

Oil and Gas in the Four Corners. Compiled and edited by Paul J. Kuhn. National Petroleum Bibliography, Amarillo, Tex., 1958. 302 pp.

20th Century Chemistry. Joseph I. Routh. Saunders, Philadelphia, ed. 2, 1958. 631 pp.

Nuclear Quadrupole Resonance Spectroscopy. Supplement 1, *Solid State Physics, Advances in Research and Applications.* T. P. Das and E. L. Hahn. Academic Press, New York, 1958. 232 pp. $7.

Cellulosics. Walter D. Paist. Reinhold, New York; Chapman & Hall, London, 1958. 279 pp. $5.75.

Fluorocarbons. Merritt Allen Rudner. Reinhold, New York; Chapman & Hall, London, 1958. 248 pp. $5.75.

Zum Weltbirld der Physik. Carl Friedrich von Weizsäcker. Hirzel, Stuttgart, Germany, 1958. 378 pp. DM. 14.70.

Ego Structure in Paranoid Schizophrenia. A new method of evaluating projective material. Luise J. Zucker. Thomas, Springfield, Ill., 1958. 196 pp. $5.50.

The Psychology of Interpersonal Relations. Fritz Heider. Wiley, New York; Chapman & Hall, London, 1958. 331 pp. $6.25.

Organic Syntheses with Isotopes. pt. I, *Compounds of Isotopic Carbon.* Arthur Murray, III, and D. Lloyd Williams. Interscience, New York and London, 1958. 1156 pp. $25.

Psychotherapy by Reciprocal Inhibition. Joseph Wolpe. Stanford Univ. Press, Stanford, Calif., 1958. 253 pp. $5.

Advances in Petroleum Chemistry and Refining. vol. I. Kenneth A. Kobe and John J. McKetta, Jr. Interscience, New York, 1958. 656 pp. $13.50.

The Rheology of Elastomers. Proceedings of a conference organized by the British Society of Rheology and held at the British Rubber Producers' Research Association, Welwyn Garden City, in May 1957. P. Mason and N. Wookey, Eds. Pergamon, New York and London, 1958. 210 pp. $8.50.

Natural Aerodynamics. R. S. Scorer. Pergamon, New York and London, 1958. 323 pp. $9.

A Comprehensive Bibliography on Operations Research, through 1956 with Supplement for 1957. Wiley, New York; Chapman & Hall, London, 1958. 199 pp. $6.50.

Evolution by Natural Selection. Charles Darwin and Alfred Russel Wallace. Published for the XV International Congress of Zooolgy and the Linnean Society of London at the University Press, Cambridge, 1958. 296 pp. $4.75.

Man the Tool-Maker. Kenneth P. Oakley. British Museum (Natural History), London, ed. 4, 1958. 98 pp. Paper.

Miscellaneous Publications

Comparative Clinical and Biological Effects of Alkylating Agents. Annals, vol. 68, art. 3. David A. Karnofsky, Consulting Ed. 610 pp. *Animal Disease and Human Health.* Annals, vol. 70, art. 3. James Lieberman, Conference Chairman and Consulting Ed. 485 pp. New York Academy of Sciences, New York, 1958.

Nutrition Committee for South and East Asia, Report. Fourth session. Tokyo, Japan, 25 Sept.–2 Oct. 1956. 49 pp. $0.50. *Calorie Requirements.* Report of the Second Committee on Calorie Requirements. FAO Nutritional Studies No. 15. 68 pp. $0.75. Food and Agriculture Organization of the United Nations, Rome, Italy. 1957.

South African Council for Scientific and Industrial Research, Twelfth Annual Report, 1956–1957. South African Council for Scientific and Industrial Research, Pretoria, Union of South Africa, 1958. 257 pp.

Procedures for the Testing of Intentional Food Additives to Establish Their Safety for Use. Second Report of the Joint FAO/WHO Expert Committee on Food Additives. WHO Tech. Rept. Ser. No. 144. 19 pp. $0.30. *The Agreement of Brussels, 1924, Respecting Facilities to be Given to Merchant Seamen for the Treatment of Venereal Diseases.* WHO Tech. Rept. Ser. No. 150. Report of a Study Group. 63 pp. $0.60. World Health Organization, Geneva, 1958.

North American Copepods of the Family Notodelphyidae. No. 3390, Proceedings of the U.S. National Museum, vol. 107. Paul L. Illg. Smithsonian Institution, Washington 25, 1958. 186 pp.

Recreational Mathematics. A guide to literature. William L. Schaff. National Council of Teachers of Mathematics, Washington 6, 1958. 143 pp. $1.20.

New Tables of Mie Scattering Functions for Spherical Particles. pt. 1, *Values of Amplitude Functions* a_m *and* b_m *for Refractive Index* $n = 1.33$ *and for Size Parameters* $a = 0(0.1)30$. Geophysical Research Papers No. 45. ASTIA Document No. AD-98767. Rudolf Penndorf and Bernice Goldberg. Geophysics Research Directorate, Air Force Cambridge Research Center, Bedford, Mass., 1956 (order from Armed Services Technical Information Agency, Arlington Hall Station, Arlington 12, Virginia).

Instrumentation for Studies of the Exploding Wire Phenomenon. ASTIA Document No. AD 133842. Instrumentation for Geophysical Research No. 7. W. G. Chace and E. H. Cullington. 40 pp. *Radar-Synoptic Analysis of an Intense Winter Storm.* Geophysical Research Papers No. 56. ASTIA Document No. AD 133824. Edwin Kessler, III. 226 pp. Geophysics Research Directorate, Air Force Cambridge Research Center, Bedford, Mass., 1957 (order from Armed Services Technical Information Agency, Documents Service Center, Dayton 2, Ohio).

Forest Farmer, Manual Edition, March 1958. Forest Farmers Assoc., Atlanta, Ga., 1958. 176 pp. $4.

Science News. Archie and Nan Clow, Eds. Penguin Books, Baltimore, Md., 1958. 140 pp. Paper, $0.65.