

expect space flights within our solar system in the foreseeable future.

In the future part of our animal fodder, if not our own food, may be harvested from crops of algae and yeast or made in chemical factories. Some of the food factories will use entirely chemical processes, others may use bacteria or other simple organisms to effect certain stages of the processes. New animals will be domesticated; perhaps it will be easier and cheaper to train monkeys to pick fruit crops rather than devise and construct fruit harvesting machines!

In medicine the chief problem of the future will not be how to attain old age but how to make old age pleasant, pain-free and desirable. It even seems possible that human beings can eventually be made immortal save for violent accident—a situation envisaged by George Bernard Shaw in "Man and Superman." The author fails to mention the giant strides being recently made in the control of mental disease; surely the health of the mind and the soul is equally important as the health of the body.

Sir George feels that minor and local control of weather might be effected but is not sanguine about far reaching climate control. At least man of the future will still be able to talk about the weather.

Many more aspects of the future are charmingly discussed: plant and animal genetics and controlled mutations, calculating machines, education, leisure and adventure, population growth, to name but a few.

What a harvest of abundance is being prepared for the average man and his children through the workings of the rational mind and the operation of the scientific method! It seems to me that a book of this kind, free from all political bias, can do much to establish communication and rapport between all the peoples of the earth. Surely, everybody's stake in the future is so large that we might hope that were it widely understood we might eventually beat our swords into plowshares (for museum purposes) and our super bombs into atomic fuel.

"Till the war-drum throbbed no longer and the battle flags were furled

In the Parliament of man, the Federation of the world."

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**Annual Review of Physical Chemistry.** Volume 6. By G. K. ROLLEFSON, Editor, University of California, and R. E. POWELL, Associate Editor, University of California. Annual Reviews, Inc., Stanford, California. 1955. ix + 515 pp. 16 × 23 cm. Price, \$7.00 (U.S.A.); \$7.50 (elsewhere).

The sixth volume of this series constitutes another valuable tool for the busy scientist who wishes to keep himself abreast of developments in these areas which are so important to both chemistry and physics. It contains 21 chapters, prepared by a group of thirty-one authors and treating the following subjects: Thermochemistry and the Thermodynamic Properties of Substances, Cryogenics, Heterogeneous Equilibria and Phase Diagrams, Solutions of Electrolytes, Solutions of Nonelectrolytes, The Solid State: Diffusion in Metals and Alloys, Radiation Chemistry and Hot Atom Chemistry, The Quantum Theory of Valence, Electronic Spectroscopy, Vibration-Rotation Spectroscopy, Metal Chelate Compounds, Experimental Molecular Structure and Crystallography, Kinetics and Reactions in Solution, Kinetics of Reactions in Gases, Surface Chemistry and Contact Catalysis, Electrode Processes and the Electrical Double Layer, Polymerization Kinetics and Polymer Properties, Colloid Chemistry Exclusive of High Polymers, Isotopes, Nuclear and Paramagnetic Resonance, Statistical Mechanics.

Some of these subjects, Thermochemistry and Thermodynamic Properties of Substances, for instance, have been dealt with in each of the previous volumes of this series. In such cases the literature survey is limited primarily to the year 1954 and the coverage of the various sub-topics within the field is very broad and complete. On the other hand, in the chapter on Cryogenics, a subject which has been treated in only two of the six volumes of this series, the author has very wisely chosen to concentrate attention this year on two

areas, *viz.*, superconductivity and magnetic phenomena, and he covers their development over a decade or more. Both types of treatment are logical for the particular cases involved.

A stupendous amount of labor has clearly gone into the preparation of these reviews. Thus the bibliographies attached to these 21 chapters of the present volume contain 3918 references! The successful supervision and coördination of the work of the various authors attests to the skillful guidance of the editors, especially Gerhard Krohn Rollefson whose sudden death on November 15, 1955, has shocked his many friends.

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## BOOKS RECEIVED

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