cient inclusion of an enormous number of helpful clues to simplification and variation, useful facts, and warnings about pitfalls, in a remarkably readable account. A brief discussion by J. D. Smith makes the reader acquainted with the up-to-date electrophoretic separations so useful especially for nucleotides. By way of comparative methodology, a chapter by Dische gives a glimpse into a glass-windowed analytic laboratory wherein one can judge the range, sensitivity, and sources of error of a series of alternative colorimetric methods for determining the sugars, bases, and phosphorus of nucleic acids and nucleoproteins.

A long chapter by Chargaff and another by his colleague F. Magasanik deal with the isolation, purification, characterization, preservation, and denaturation, and with the regularities in composition, of the DNA's and PNA's, respectively. The thorough discussions include most of the reliable available data on analyses of animal, plant, bacterial, and virus nucleic acids. Here at long last is an editor who believes in the retention of individuality, for almost every "long view" in his chapter is flavored with figurative expression or whimsy. To borrow his manner, one might say that every glance upward from his microscope is marked with a genial chuckle or a sly grin.

Evidence is impressive in the section by D. M. Brown and A. R. Todd that the contribution of the organic chemist to biochemistry can be (both figuratively and literally) synthetic as well as analytic. Carrying on where Baddiley left off, these authorities cover the important direct chemical approaches that have refined our knowledge of the intranucleotide linkages. D. O. Jordan gives a clear, well-illustrated picture of the physical properties, shape, size, and organization of nucleic acids, in both the dry and the dissolved state. The important dissociation, optical diffraction, scattering, and flow parameters are considered in themselves and as they are affected by *p*H or ionic strength. Light absorption and dichroism are covered by G. H. Beaven, E. R. Holiday, and E. A. Johnson with inclusion of tables and curves bearing much standard and basic data. Finally, in a comprehensive review of all the depolymerases, hydrolases, phosphatases, deaminases, and oxidases affecting nucleic acids and their components, G. Schmidt provides an impressive reference work.

From one-third to well over one-half of the cited literature references are dated 1950 or later, and another one-fourth are from the preceding 5 years, in the various chapters; there are a total of 300 or more in several cases. Copious cross references have been provided; as in so many books a large part of these are to whole chapter numbers, an inconvenience since only 15 out of more than 600 pages show the number of the chapter at which one is looking.

The completed work cannot fail to be a major source book and basic reference. It seems to have a coherence and integration that are unexpected for a complex of so many sections and retains most of the advantages derived from purifying a large body of literature through the minds of active contributors.

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Radioisotope Conference, 1954. vol. I, *Medical and Physiological Applications.* Proc. Second Conference, Oxford, 19–23 July. J. E. Johnston, Ed. Academic Press, New York; Butterworths, London, 1954. xi + 418 pp. Illus. $10.80; vols. I and II, $16.

The Second Radioisotope Conference was held in Oxford in July 1954. Forty-six papers record current research in which radioisotopes have been utilized for varied problems in the medical, biochemical, and agricultural sciences. The conference was international in participation, and an examination of this volume illustrates the numerous applications of radioisotopes to medical and biochemical problems.

Half of the papers are of interest primarily to those concerned with therapeutic and diagnostic applications of radioisotopes. Six papers illustrate applications of radioisotopes to problems in plant nutrition and plant physiology. The remainder of the papers illustrate the applications of radioisotopes, principally C^{14}, I^{131}, and tritium, to biochemical problems. The research presented in most cases was current, and in some instances the results were only preliminary. Prompt publication of the volume has been achieved, which enhances the value of the papers. In addition, the discussions occasioned by the presentation of each paper have been included and are of considerable interest.

It is my opinion that only a few papers in this volume will be of direct interest to any one person, owing to the wide range and specialized nature of the applications of radioisotopes that have been covered. However, the majority of the articles are readily understandable to the nonspecialist, and as a result, a perusal of this volume may provide one with useful ideas for the application of radioisotopes to new problems in varied fields.

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The Plant Quarantine Problem. W. A. McCubbin. vol. IX of *Annales Cryptogamici et Phytopathologici.* Frans Verdoorn, Ed. Ejnar Munksgaard, Copenhagen (U.S. distr.: Chronica Botanica, Waltham, Mass.) 255 pp. $4.80.

W. A. McCubbin has done an outstanding job of presenting and reviewing the various aspects of plant quarantines, including their biological background, social and economic relationships, legal features, and administration. There is also an over-all appraisal of the plant-quarantine problem and a discussion of quarantines from the international standpoint. A concise historical summary of federal quarantines that have been promulgated on account of plant diseases is given in an appendix.

The subject matter is well organized, clearly presented, and easy to read. The book is arranged and indexed to facilitate ready reference. It is a valuable addition to the reference literature on this subject, particularly since it represents the first time that the entire field of plant quarantines has been covered in one volume.

The author is exceptionally well qualified to discuss all phases of the plant-quarantine problem, having had more than 30 years experience in the enforcement of state quarantines as well as federal foreign and domestic quarantines. During this period he was engaged in both administration and actual enforcement in the field. This background has enabled him to present his subject so that the book not only should be useful as a reference to plant regulatory workers, teachers, scientists, and similar groups but also should be of interest to the layman who is affected by plant quarantines.

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Glass Reinforced Plastics. Phillip Morgan, Ed. Iliffe, London; Philosophical Library, New York, 1954. vii + 248 pp. Illus. $10.

This volume contains 15 chapters, each written by a separate contributor, arranged to cover the various phases involved in the manufacture and use of glass-reinforced plastics. These products constitute a relatively new class of materials, which are finding increasing applications in industry. The coverage includes glass-fiber forms and properties, chemistry of the usable resins, commercial fabrication of the desired shapes, and industrial applications.

Glass fibers offer several advantages

over other materials when they are used as reinforcement in plastic structures and are available to the industry in both the short length or staple form and in continuous lengths. Many glass cloths and weave types are available, and further variety is afforded by choice of the type of glass from which the fibers are made.

Discussion of the chemistry of resins covers the polyesters, phenolics, epoxides, silicones, melamines, and furanes. Ancillary materials, such as catalysts, fillers, accelerators, release agents, and pigments are discussed in relation to their use with different resins. The choice of glass-fiber type and resin type depends upon particular requirements, such as electric resistance, dielectric loss, or chemical resistance. The fabricator has a number of commercial production molding processes at his disposal for forming the desired shapes, including laminates, complicated shapes, tubes, and rods.

Properties of glass-reinforced plastic structures depend upon the separate properties of the glass fibers and resins used, the way in which they are combined in the shape, and the design of the article. These features have made such materials very useful in the aircraft industry, automobile and boat-building body work, and other transport applications, laminates in the electrical field, and miscellaneous applications.

This book gives a good introduction to those interested in applications of these materials. References given are sufficient for more detailed study of the subjects covered.

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Peripheral Nerve Injuries. Medical Research Council Special Rept. Ser. No. 282. H. J. Seddon, Ed. Her Majesty's Stationery Office, London, 1954. xvi + 451 pp. Illus. £2 15s.

The plans for this report were laid during World War II at the time of the appointment of a Nerve Injuries Committee headed by George Riddock, who had been secretary of a similar committee during World War I. At his untimely death, the chairmanship of this committee was taken over by H. J. Seddon. The plan in which this report was to be carried out, with regard to both the investigative work and the manner in which cases were to be followed, was a tribute to the committee. It is emphasized that the work reviewed in this report is collected from only a few selected centers headed by members of the committee. The reliability of the work performed under each member of this committee is unquestioned. The report is not an attempt to present a complete analysis of the diagnosis and treatment of injuries of the peripheral nerves but rather is a presentation of the advances made in the understanding of nerve injuries by British workers during the war years.

The report, some 428 pages, is essentially a collection of papers by the various authors. Some of these are fairly didactic in their approach, reviewing the literature in detail and presenting definite conclusions; whereas others present a definite attempt to analyze the results of treatment in certain types of cases. Special mention should be given to the initial portion of the book by Seddon, in which he emphasizes again the way in which the results were collected. His own analysis of the frequency of anomalous nerve innervation, particularly to the muscles of the human hand, is an especially important one. There are important sections on various types of nerve injuries and on the histopathology of nerve injury, causalgia, and detail presentations of electric diagnosis of peripheral nerve injury and electromyography. This factual presentation does not leave out the importance of the human factor as related to morale. This is particularly evident in the section entitled "Factors influencing functional recovery" by Ruth Bowden. A brief quotation from this section serves to emphasize this.

"Splints, active and passive exercises and physiotherapy play an important part in re-education by preventing or minimizing the adverse effects of degeneration and by maintaining mobility of the part; but one of the most significant factors appears to be the necessity for constant usage at work, in pastimes and sport.

"Surgical intervention for repair of damaged nerves or reconstruction is but an incident in the treatment, for the ultimate success of all therapeutic measures lies, to a large extent, in the hands of the patient. Once this factor is appreciated, the willing cooperation of most of them was remarkable."

A particularly useful section of this book is by Robert Zachary, who gives a statistical, as well as a detailed, analysis of the results of nerve suture. Other detailed sections on nerve grafting and brachial plexus injuries are included and are of considerable value, both in the technical details and in the statistical analyses. Of great importance is the factor brought out in the British survey that recovery in all peripheral nerves usually continues for approximately 3 years after repair and that in some cases this recovery may continue up to 5 years. The long term follow-up in a large number of the cases is therefore important.

This book is singularly free of errors and, in view of the fact that portions of it are presented by various well-known authors, it is singularly free of controversy or contradictions. It is printed on high-quality paper and is written in the usual excellent English style.

The eventual publication of this massive analysis of the teamwork of numerous British workers is a piece of work that will be of value to all neurologists and neurosurgeons and to all those interested in neuroanatomy and neurophysiology. It will be of particular value to anyone writing on any facet of peripheral nerve injury, for in this volume is contained useful information on almost all aspects of this subject.

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New Books

High Energy Nuclear Physics. Proceedings of the fifth annual Rochester conference, 31 Jan.–2 Feb. 1955. Compiled and edited by H. P. Noyes, E. M. Hafner, G. Yekutieli, and B. J. Raz. Univ. of Rochester, Rochester, Interscience, New York, 1955. 198 pp. $2.50.

Physiologie der Zelle. Johannes Haas. Borntraeger, Berlin, 1955. 474 pp. DM. 48.

Treatise on Invertebrate Paleontology. part E, *Archaeocyatha and Porifera.* Prepared under the guidance of the Joint Committee on Invertebrate Paleontology. Raymond C. Moore, Ed. Univ. of Kansas Press, Lawrence; Geological Soc. of America, New York 27, 1955. 122 pp. $3.

Security for All and Free Enterprise. A summary of the social philosophy of Josef Popper-Lynkeus. Henry I. Wachtel, Ed. Philosophical Library, New York, 1955. 162 pp. $3.

Problems of Consciousness. Transactions of the fifth conference. Harold A. Abramson, Ed. Josiah Macy, Jr. Foundation, New York, 1955. 180 pp. $3.50.

The Natural History of Tsetse Flies. An account of the biology of the genus *Glossina* (Diptera). Memoir No. 10, London School of Hygiene and Tropical Medicine. Lewis, London, 1955. 816 pp. £4 4s.

Basic Processes of Gaseous Electronics. Leonard B. Loeb. Univ. of California Press, Berkeley, 1955. 1012 pp. $13.50.

A Laboratory Manual of General Chemistry. Saverio Zuffanti, Arthur A. Vernon, and W. F. Luder. Saunders, Philadelphia–London, 1955. 308 pp. $3.75.

Adaptive Human Fertility. Paul S. Henshaw. Blakiston Div., McGraw-Hill, New York–London, 1955. 322 pp. $5.50.

Salamanders and Other Wonders. Still more adventures of a romantic naturalist. Willy Ley. Viking, New York, 1955. 293 pp. $3.95.

Standing Room Only. The Challenge of overpopulation. Karl Sax. Beacon Press, Boston, 1955. 206 pp. $3.

New Methods in Analytical Chemistry. Ronald Belcher and Cecil L. Wilson. Reinhold, New York; Chapman & Hall, London, 1955. 287 pp. $5.50.