posed upon genetically diverse populations by habitats gradually approaching limiting conditions for survival, as the situation was interpreted by Fernald. Rather, the chance invasion of unoccupied habitats by the dispersal of accidentally homozygous, initially small and genetically uniform populations has given the aspect of "ancient" endemism and disjunct distribution of long-inbred vestigial types.

It must not be forgotten that newly exposed unleached glacial till at the edge of the receding ice sheet would have contained so much pulverized limestone that it would have provided a temporary habitat for calciphile species.

Anyone interested in the plant geographical problems of the glaciated region will find all the data that pertain to Gaspé admirably assembled in Scoggan's book. As a regional flora it is extremely satisfactory, for the keys will enable the local or visiting botanist to determine most collections without recourse to other books. Space limitations prevent discussion of any systematic details, but in general it appears that Scoggan has found himself botanically in agreement with the conclusions of Fernald and his associates. We are indebted to him and the National Museum of Canada for a fascinating account of an important local flora.

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Antennas. John D. Kraus. New York: McGraw-Hill, 1950. 553 pp. $8.00.

The day when the antenna for a radio receiver was just any old piece of wire has passed. The philosophy behind this has, however, taken a long time to die. It required the advent of ultra short waves to bring antenna design into true perspective, and to set the subject alongside other aspects of radio engineering as one worth studying for its own merits.

In many present-day radio applications the antenna is the most vital part of the equipment and that on which its whole accuracy depends, the transmitter and receiver being merely a source and detector of power. This is particularly true of radar applications, which have probably done more than anything else to stimulate modern interest in antenna design.

Accordingly, there has arisen a need for a textbook that deals comprehensively with the subject at a level which can be understood by a student in the final years of his university course. The present text, written by one who has by his own research added considerably to our knowledge of the subject, goes far toward meeting this need. The student using the book requires a good grounding in the fundamentals of electromagnetic theory, and some knowledge of physical optics is an advantage, but at no stage is a very advanced mathematical treatment involved.

Antennas covers all aspects of the subject, starting with the properties of point sources and simple linear elements and dealing with combinations of these to form arrays of various types. In order to do this the self and mutual impedances of the elements of the arrays are fully dealt with. Some consideration is given to the fundamental theory of the biconical and cylindrical dipole, but the complex mathematics usually associated with this subject has been omitted. This aspect might have received a fuller treatment, in view of the recent important theoretical advances in this field, but it must be admitted that most of the mathematics involved is beyond the average student.

The theory of antennas acting as sources with a continuous distribution across their aperture is also treated, and many applications to microwave antennas are discussed. It is not surprising that the helical antenna should be treated in some detail in view of the author's important contributions to this subject. One or two subjects of importance receive, however, rather scanty treatment, the most notable being the Yagi aerial, which is now widely used.

References to published work given throughout the text are most useful. These are largely confined to American research and do not include much of the work carried out in England during the war. Recent British publications, however, cover this work rather fully.

The number of textbooks on antennas is not great, and some err by being either so full of engineering details as to obscure the fundamental principles, or so full of mathematics as to leave no room for practical considerations. The author has struck a happy compromise between these viewpoints. *Antennas* can be confidently recommended as a textbook for students of radio engineering and as a reference book for those engaged in research or in engineering practice.

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Thoracic Surgery. Richard H. Sweet. Philadelphia: Saunders, 1950. 345 pp. $10.00.

This new book on the techniques of thoracic surgery has been written by one of the recognized leaders in this field in American surgery, and it adds luster to his reputation. The book is "based upon the concept that any properly qualified surgeon can acquire with relative ease a satisfactory proficiency in thoracic surgery by employing the techniques herein described." With this as a starting point Dr. Sweet has written a thoroughly inclusive volume which will lead the interested reader through a rather abbreviated section on the surgical anatomy of the thorax, general considerations of thoracic operations, and finally the techniques of specific operations for specific disorders.

The author's experience in thoracic surgery and his wide knowledge of past and present literature have

been distilled to produce a single volume that admirably covers the broad and still-expanding field of thoracic surgery. Necessarily, a considerable degree of simplification that occasionally approaches unwise abbreviation has ensued. The road to surgical success in the performance of thoracic operations has been clearly outlined, but the surrounding landscape has been eliminated or blurred to the point of being almost absent. This need not be a shortcoming of the book if the reader always keeps in mind his own experience and judgment.

The numerous illustrations, most of which have been done by Rodriguez Arroyo, are of variable quality, but in general are rather lacking in the lucidity that is apparent in the text.

One can certainly recommend this book for the careful reading of anyone interested in the techniques of thoracic surgery. It should also prove profitable reading for the general practitioner or medical chest specialist who could gain a greater understanding of disorders of the chest that are amenable to surgical treatment. Dr. Sweet's purpose in writing the book has been admirably fulfilled, and disappointments are extremely few.

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Elements of Human Physiology. 2nd ed. Miriam Scott Lucas. Philadelphia, Pa.: Lea & Febiger, 1950. 357 pp. $4.75.

This new text in human physiology represents a revision of an earlier one of 1940. Based on long experience in the teaching of undergraduate students, many of the chapters have been quite thoroughly revised and others completely rewritten. The general format of the book remains the same as before.

A number of features stand out in the revision. One is the completely rewritten accounts of the nervous system, where the author has tried to unite more closely than ever its somatic and visceral portions by treating them together, rather than giving the autonomic system its usual chapter by itself. Other features are an expansion of the blood groups to include the Rh factor(s), inclusion of a brief account of aviation physiology in the chapter on respiration, a rewritten account of water balance and body fluids, increased emphasis on the role of absorption as a preliminary to metabolism, a greatly improved account of vitamins, and considerable improvement in the final section on reproduction and endocrines. Last, but not least, are the inclusion of a number of new illustrations and tables, and the appearance of special references at the end of each chapter.

It is the reviewer's opinion that the text has considerable merit as an undergraduate account of human physiology. It is neither too condensed nor too elaborate. The author has kept both the student and the teacher in mind throughout in writing the book. The physiological material has not been overdiluted with anatomy, as often happens in a book of this type, yet there are anatomical accounts where needed. The style of writing is generally clear. As in all revised texts, some errors in typography still remain, and new ones creep in during revision. The discerning reader will also note several mistakes in fact or impression, again not unusual for a textbook. For example, 10^{-7} is not the negative logarithm of pure water at 22° C (p. 125); the "neosensibilities" of Brouwer include certain exteroceptive pathways as well as proprioceptive (p. 79); not *all* enzymes (with the exception of rennin) are hydrolytic enzymes; this should have been qualified with the word "digestive" (p. 206). As far as the reviewer is aware, uric acid is not formed in the intestine from nucleic acids (p. 273); it is questionable whether bile salts aid pancreatic enzymes in protein digestion, unless the author means indirectly through the facilitation of fat digestion (p. 221).

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Scientific Book Register

Stress. Hans Selye. Montreal, Canada: Acta Endocrinologica, 1950. 1,025 pp. $14.00.

Handbook of South American Indians: Physical Anthropology, Linguistics and Cultural Geography of South American Indians, Vol. 6. Smithsonian Institution, Bureau of American Ethnology, Bull. 143. Julian H. Steward, Ed. Washington, D. C.: U. S. Government Printing Office, 1950. 715 pp. $5.00.

The Enzymes: Chemistry and Mechanism of Action, Vol. I, Part 1. James B. Sumner and Karl Myrbäck, Eds. New York: Academic Press, 1950. 724 pp. $13.50.

Contributions to the Theory of Games. Annals of Mathematics Studies, No. 24. H. W. Kuhn and A. W. Tucker, Eds. Princeton, N. J.: Princeton Univ. Press, 1950. 201 pp. $3.00.

Gmelins Handbuch der Anorganischen Chemie: Antimon, Teil A. Weinheim-Bergstrasse, Germany: Verlag Chemie, 1950. Pp. 303–351. DM 16.50.

The Neural Crest: Its Properties and Derivatives in the Light of Experimental Research. Sven Hörstadius. New York: Oxford Univ. Press, 1950. 111 pp. $3.00.

Plant Pathology. John Charles Walker. New York: McGraw-Hill, 1950. 699 pp. $7.50.

Classical Mechanics. H. C. Corben and Philip Stehle. New York: Wiley; London: Chapman & Hall, 1950. 388 pp. $6.50.

Elements of Fractional Distillation. 4th ed. Clark Shove Robinson and Edwin Richard Gilliland. New York: McGraw-Hill, 1950. 492 pp. $7.00.

The Chemistry of the Nonbenzenoid Hydrocarbons. 2nd ed. Benjamin T. Brooks. New York: Reinhold, 1950. 615 pp. $12.00.

Handbook of Antibiotics. A. L. Baron. New York: Reinhold, 1950. 303 pp. $6.50.