cutting was then set in each mixture, and toxicity to the cutting was observed after 18 hr. A positive nitroprusside test in solutions containing cysteine or glutathione with lycomarasmin and ferrous (but not ferric) ion indicated that free SH groups were still present after 18 hr, which was at least twice the time required for the cutting to absorb a toxic dose of the lycomarasmin-iron complex.

The toxicity to tomato cuttings of the ferro- or ferri-lycomarasmin complex was not decreased by glutamic acid, glutamine, glutathione, or cysteine. This was true regardless of the order in which reagents were added. Evidently lycomarasmin is unable to react with metabolites containing SH groups, such as cysteine or glutathione, and is not an antimetabolite for glutamic acid, glutamine, or glutathione.

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Book Reviews

Natural Communities. Lee R. Dice. Ann Arbor: Univ. Michigan Press, 1952. 547 pp. Illus. $5.50.

If it does nothing else, Dr. Dice's book should impress a reader with the extent and complexity of the subject of plant and animal communities. Characterized by a multiplicity of subheads, generalizations, and brief examples and discussions, its purpose is to introduce the student to principles of ecology and to stimulate further investigations of the little-understood relationships existing wherever life is maintained.

Although I am not sure that it is or ever will be within the ability of any one person to write of the broad field of ecology with more than passable adequacy—irrespective of how much space be used—the author has put forth such a comprehensive outline that it is hard to conceive of wholly complete omissions. He has, indeed, touched upon just about everything ecological that ecologists commonly think of! Furthermore, his treatment of most of the elementary material, and of at least some of the more advanced, seems to me unusually lucid, and particularly appropriate for undergraduate teaching.

My chief criticisms have to do with what might be called some of the more modern concepts. Certain shortcomings in this respect may be attributed in part to the natural difficulties of condensation and of keeping up with the accelerating progress of ecological and associated sciences in late years, but not all may thus be accounted for. As concerns various aspects of community equilibria, population dynamics, etc., I am disappointed that Dice has not recognized the increasingly voluminous evidences of resilience and compensatory or automatic adjustments that represent substantial departures from conventional ideas of the impact of living things upon each other. Instead of his depicting natural relationships as being so intermeshed that every change in the population status of organisms has its repercussions on all members of a community (the Darwinian view, in short), I think that he could well have shifted more emphasis to discussions of the remarkable facility with which populations often adapt to year-to-year changes in food supply, gross habitat, reproductive rates, and kinds and amounts of mortality. Better distinctions between the factors that truly delimit populations and those that operate only incidentally to population phenomena would have been highly desirable, in my opinion.

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Radio Astronomy. Bernard Lovell and J. A. Clegg. New York: Wiley, 1952. 238 pp. Illus. $4.00.

This book meets the need for an introductory text in radio astronomy. The reader is introduced to this new science by a pair of very able authors who have long been actively engaged in theoretical and experimental research in the field. Their writing style is lucid and concise. Mathematical treatment is held to a minimum but is adequate for a text of this type.

Most of the important work in radio astronomy has been performed since the end of the second world war. As stated in the preface: "The fundamental discoveries in this new science were made nearly twenty years ago, but it was the rapid development of refined radio techniques and the experience which physicists obtained in radar during the war, which eventually led to its sudden emergence from obscurity after 1945." During the past seven years a vast amount of work has been performed in this field by outstanding research teams in the British Commonwealth, the United States, and in other countries. There has been a steady flow of reports on radio meteors, radio stars, solar and cosmic radio noise, etc. Unfortunately, however, this wealth of information has been so widely dispersed among the scientific publications of the various countries that it has become increasingly more difficult to keep abreast of new developments.

The authors have succeeded rather well in organ-

izing the available knowledge and current theories into a very readable book. The basic radio techniques involved are described. References as recent as 1951 are assurance that this book is as up to date as possible in a rapidly developing scientific field. Illustrations are used generously and are well chosen. The text is well bolstered with references and experimental data, which are generally presented in the form of graphs or histograms, with the sources of the data and conditions of the experiments clearly stated.

There is scarcely any field of science in which one does not encounter apparently conflicting theories. This is particularly true of one as new as radio astronomy. The authors could scarcely have evaded such controversial subjects as the high equivalent solar temperatures deduced from radio measurements, electron densities in the aurorae, hyperbolic meteor velocities, etc. In the opinion of this reviewer such subjects have been treated with scientific fairness.

More space is devoted to meteors than to any other branch of radio astronomy, probably because the authors have been most active in this field. The chapters on solar radio emissions summarize the work of Reber, Southworth, and others and discuss rather briefly some of the unexpected results obtained by the measurements of solar radio noise. The same general statement can be made about the chapters on galactic radio emissions. The treatment of solar and galactic radio emissions, although relatively brief, is informative and interesting and is probably sufficient for a book of this type. The twinkling of radio stars is discussed in a short but interesting chapter. The chapter on "Radio and the Aurora Borealis" should be of particular interest to those concerned with radio-wave propagation in northern latitudes. The final chapters deal with the techniques employed in the radio exploration of the moon and the possibility of perfecting these techniques for the purpose of obtaining radio echoes from the planets.

This book, in its text, references, and bibliography makes nearly all the existing information of any consequence about radio astronomy available to the reader. It will therefore be very useful to those interested in the subject.

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A Stereoscopic Atlas of Human Anatomy. Section 1, ***The Central Nervous System.*** David L. Bassett, with photography by William B. Gruber. Portland, Ore.: Sawyer's, Inc., 1952. Williams & Wilkins, Baltimore, Md., exclusive agents for the U. S., except the 11 Western states; J. W. Stacy, Inc., exclusive agents for the 11 Western states. 500 pp. 34 reels. $27.50. Viewing equipment extra.

The publication of this atlas brings to teachers and students a new and invaluable tool. The author has done a careful dissection of the central nervous system and has recorded each step by means of transparencies. Viewed through the View-Master stereoscope, they offer a three-dimensional method for study. The anatomical and surface relationships of all structures are clearly seen; where possible, the dissection was carried through on the same cadaver, thus providing a continuity not usually available in material of this type.

There are 238 stereoscopic views mounted on 34 View-Master reels, which are stored in the cover of each of the four volumes. Each view is accompanied by a labeled drawing made from an enlarged tracing of the picture, so that all the structures can be easily identified. This method also avoids the necessity of placing confusing lines on the pictures.

The circulatory system has been clearly outlined by injection of red or blue latex, and the blood vessels therefore stand out clearly; their course and distribution are easily demonstrated. Also included are pictures of normal radiographic brain studies, angiograms, and pneumoencephalograms.

Section 1 is the first of seven that are in preparation. The entire human body will eventually be included in sections dealing with the head and neck, thorax, abdomen, pelvis, upper extremities, and lower extremities.

Dr. Bassett and Mr. Gruber are to be congratulated for this beautiful work. The photographs are unusually excellent in composition, clarity, and detail. The atlas, which is well indexed for easy reference to various anatomical structures, will assist the teacher in outlining dissection and will prove a convenient study aid for the student. For the surgeon, it offers a quick review of regional anatomy for preoperative preparation. The slides are adapted for either three-dimensional viewing in the View-Master or for two-dimensional viewing using projection apparatus. This makes them ideal for classroom work.

The entire project is a notable contribution to the field of anatomy, and we look forward to the publication of succeeding sections with eager anticipation.

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Harwell: The British Atomic Energy Research Establishment, 1946–1951. Prepared by the Ministry of Supply and the Central Office of Information. New York: Philosophical Library, 1952. 128 pp. Illus. $3.75.

This small book, which contains 92 pages of technical material with an additional 36 of appendices, is an extremely well-written, factual volume devoted to the scientific aspects of the British Atomic Energy Establishment at Harwell, with mention of the Windscale production site. Although it does not include any great amount of new or surprising material that is not available in the nuclear science literature, it does give a clear picture of the administration and the type of research problems and facilities that characterize this work in the United Kingdom.

The treatment of the various types of research is to give a thumbnail sketch of the fundamental problem involved and a clear statement as to what approach is