often held within 24 hours and, if the request is urgent, within the same day a plan of procedure is laid down and submitted.

Every one in this country, and scientists and industrialists are no exception, is naturally anxious to contribute everything he can toward winning the war. New thoughts, new ideas, new short cuts, are constantly coming to the front. While it is not the place of the War Metallurgy Committee, according to Dr. Jewett, to be the repository for such suggestions and ideas, it recognizes as a very definite part of its wartime job the appraisal of such of these problems and possibilities as are referred to it by the WPB or the Office of Scientific Research and Development.

Another important function of the War Metallurgy Committee is to digest and make available to those properly interested through their participation in the war effort the results of both Canadian and English metallurgical research. Obviously both Canada and England have a great many of the same problems which confront us, and the interchange of information makes available to all the best thinking and practice of scientists and industrialists on both sides of the Atlantic.

Typical of the problems referred to this committee is one asking for improvement in welding processes. A subcommittee was immediately appointed, which collected all available known data from universities, engineering foundations and research departments of business organizations. The Project Section of the War Metallurgy Committee worked up the research indicated and research procedure; with the approval of the National Defense Research Committee and the Office of Scientific Research and Development, this research was placed with one of the university laboratories and compensated for on a cost basis from funds made available by OSRD.

Typical of requests for data and projects from the WPB is that of the effect of substitution of lead-silver for tin-lead soldering of tin cans used for food products. Since tin is the one important metal which is not found in the United States, even in low-grade ores, it is obviously important that the conservation of the present use of tin is urgent. Since a great proportion of the total consumption of tin is used in soldering, the substitution of lead-silver for tin-lead soldering is immediately dictated, but the problems involved in certain canning processes are such that definite research is needed before such substitution can be ordered.

This research project was prepared through the Project Section of the War Metallurgy Committee and will be administered through its research section, the work being done in one large university research laboratory, in cooperation with the National Canners Association.—*Chemical and Engineering News.*

SCIENTIFIC BOOKS

ASTRONOMY

Foundations of Astronomy. By W. M. SMART. 268 pp. 119 illustrations. London: Longmans, Green and Company. 1942.

THE preface of this excellent text announces that it "is intended for students taking a first-year course in Astronomy in the Universities and for all those interested in the subject who feel the need for a more solid foundation than the many descriptive books can provide." The book is definitely not descriptive in character; in the entire volume, there is not a single photograph or drawing of a celestial body. Only seven pages are devoted to the description of the sun, moon, planets, comets, minor planets and meteors, while nine pages are devoted to atmospherical refraction, fourteen to parallax and seventeen to aberration, precession and nutation. On the other hand, the volume is generously supplied with diagrams and sketches, clearly lettered, to help in the understanding of the text.

Although the book is essentially mathematical in character, the reader does not need a strong mathematical background to read it; nothing beyond a knowledge of elementary trigonometric functions is required. Only the cosine formula of spherical trigonometry is derived; the sine formula and several others are merely stated. The applications of the spherical trigonometric formulae are rather limited in number.

Five of the early chapters, "The Geometry of the Sphere," "The Celestial Sphere," "Right Ascension," "Mean Time" and "Determination of Position on the Earth," contain information needed as background by the student of navigation. Some of the terms used and the definitions given differ from standard American practise, enough to decrease considerably the value of the book to a person in the armed forces of the United States. For example, "true bearing" as defined by Smart is identical with "azimuth" as defined by the U. S. Navy; each is measured from the north point of the horizon to the east to 360°. "Azimuth" as defined by Smart is measured from the north point of the horizon in the northern hemisphere, from the south point of the horizon in the southern hemisphere; in either case, it is measured to the east or to the west to 180°. For purposes of computation, this definition is very convenient. He naturally pre-

sents the British measure of the nautical mile, 6,080 feet rather than the American, 6,080.27 feet.

In the discussion of time, the author carefully clears up one point on which there has been considerable confusion—the precise meanings of Greenwich Mean Time, Greenwich Civil Time and Universal Time, indicating the common usage of each in the United States and Great Britain.

Ten to twenty problems are provided at the end of each chapter to illustrate the principles therein; answers are given to all in the back of the book. The four chapters making up the last quarter of the book, "The Stars," Stellar Motions," "Clusters and Nebulae" and "Telescopes," also contain a minimum of description. The material throughout the book is up to date and clearly presented. The book fills a need for a modern text in elementary mathematical astronomy.

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SOCIETIES AND MEETINGS

THE AMERICAN PHYTOPATHOLOGICAL SOCIETY

THE summer meeting of the American Phytopathological Society was held at Toledo, Ohio, on June 25 and 26. The theme of the discussions and reports was "The Role of the Plant Pathologist in the War Program." The activities of the War Emergency Committee, which was appointed at the Dallas meeting, were thoroughly discussed and suggestions for future activities were made. Considerable factual information was given in reports of available fungicides, substitute sprays and seed-treating materials and equipment priorities.

It was brought out that the depletion of the ranks of scientifically trained men constitutes a serious menace not only to present essential services to agriculture, but also jeopardizes the future because of the discontinuance of certain basic researches that are essential in furnishing a basis for intelligent action in plant disease control measures.

It was pointed out that losses from preventable diseases are still appalling. Epidemics often rage unchecked because proper control measures either are not taken at all—because they are not adequate, or because information regarding control measures had not been disseminated widely enough and at the proper time because of lack of sufficient trained personnel. One of the first and most important duties of plant pathology is prompt dissemination of information regarding the best available control measures. This responsibility can not be discharged properly under present conditions. A survey of the situation with respect to extension plant pathologists in the country indicates that very few states have an adequate extension service. Some states have no extension plant pathologist at all, and some of the most important agricultural states have a single extension plant pathologist, when two or three are needed. In only very few states can the situation with respect to extension work be considered satisfactory. Pathologists themselves are trying to do what they can by assembling and exchanging information, but the situation can not be alleviated properly until more men are made available for this very important phase of insuring the nation's supplies of essential materials from economic plants.

The following fields of research were cited as among those important to the nation's war effort: A better organized nation-wide plant disease survey service, fostered by the survey subcommittee, for effective direction of crop protection programs; work on new and improved fungicides and crop protection methods led by the fungicide subcommittee; development of disease-resistant crop varieties with coordinated, local trials under special subcommittees; research led by the seed certification and seed treatment committees on problems basic to certification or treatment of seed and planting stocks to reduce losses from seed- and plant-borne diseases; research on rotations, chemical treatment and cultural management of soils to reduce losses from soil-borne diseases; coordinated research on virus diseases of plants with entomologists helping on insect carriers; prompt investigation of newly discovered, potentially destructive plant diseases; research on diseases of new crops being grown to meet war-time shortages of oil, fibers, drugs, spices, etc.; more general study of soybean diseases; and work on effective home-made dusting, spraying and treating equipment where commercial equipment is unavailable.

It was brought out that the society's national and regional war emergency organization was well adapted for prompt exchange of research information. The necessity for adequate, coordinated plant disease survey work was repeatedly emphasized. Helpfulness of specialists in performing identifications for colleagues was commended. The *Plant Disease Reporter* was declared useful in facilitating such collaboration and for prompt dissemination of important new findings. Voluntary cooperation for adequate attack on many plant-disease problems was stressed. The tremendous national importance of plant disease eradication and control programs was said to demand their maintenance at highest efficiency during the emergency.