measurable, even our own abilities. That it should be snobbish to use such grading seems hardly tenable in an age when fruit, vegetables, pigs, meat, fish, flowers, drugs, chemicals and especially incomes are so treated. Why should distinguished professors or scientists expect to be excluded? It is not democratic!

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SCIENTIFIC BOOKS

RELATIVITY

An Introduction to the Theory of Relativity. By PETER GABRIEL BERGMANN. xvi + 287 pp. New York: Prentice-Hall, Inc., 1942. $4.50.

THE book aims to present the theory of relativity to students of physics and mathematics who have had no previous introduction to the subject. The material has been divided into three parts: the special theory of relativity, the general theory and a report on unified field theories.

We will confess that had we no previous knowledge of the theory of relativity we should find great difficulty in following the book. This results not so much from any fundamental difficulty in the subject itself as from the uncertainty concerning the degree of sophistication which one must adopt in interpreting the meaning of things at certain stages. Only by drawing upon his previous experience in this matter and by supplementing the material of the book by much interpretation and clarification drawn from his former thinking is the reader able to find the happy medium appropriate to the spirit of the book, and lying between the two extremes of a superficial attitude and a super-critical one.

Thus, on page 11, the reader may wonder what is intended to be meant by force in a statement which implies that the consistency of the ratio force to acceleration is a law of nature other than a definition. Referring to the introduction of relativistic electrodynamics in Chapter 7, one who has thought deeply on the subject would find it difficult to understand what is meant by the truth of Maxwell's field equations without supplementation by a force equation.

The foregoing illustrations are simply samples of many places in which one without additional background would find difficulty in fixing in his mind the matter of what is definition and what is experimental fact or assumed law of nature. However, such difficulties must inevitably arise in any book which attempts to cover a wide field in a relatively limited space, and the work will undoubtedly be found to be of considerable value to those who, having some acquaintance with the subject, desire a standard of reference; and it will be of great value to those who are able to read it under conditions in which there is at hand somebody who has thought deeply on the subject and is able to interpret to them such uncertainties as may arise.

The fact that the book has a foreword by the father of relativity, Albert Einstein, naturally enhances its value and dignity.

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MICROBIOLOGY

Microbiology and Man. By JORGEN BIRKELAND. New York City: F. S. Crofts and Company. 478 pp. 35 figs. $4.00.

THE past ten or fifteen years have seen a remarkable development of popular interest in microbiology with a corresponding increase in the number of academic or non-technical students who take a course in bacteriology as a "cultural" subject. A large proportion of these choose this subject not so much from any curiosity concerning the nature of bacteria as from a curiosity, sometimes almost morbid, concerning disease. One can barely keep them awake when lecturing on the morphology and physiology and classification of bacteria, but can hold them spellbound when describing the symptoms of rabies. It is for such students that this book has been written.

The pragmatic approach to the subject is indicated by the title and by the first statement in the preface—"the proper study of mankind is man." To the reviewer it still seems that the proper study of the student of microbiology is the microbe, but he realizes that in this he is somewhat out of fashion.

In Dr. Birkeland's book emphasis is placed upon the effects of bacteria upon man, and while industrial or agricultural relations are mentioned here and there, mainly the book is concerned with bacteria in relation to human disease. An introductory portion of 130 pages considers the morphology and physiology of bacteria; the chapters on sterilization and disinfection are especially complete. A second section (50 pages) is concerned with general principles of infection and immunity, including epidemiology. A third section (184 pages) describes some of the more important infectious diseases and the organisms which cause them. Such details as age, racial and seasonal incidence; history; mode of spread and means of prevention, are gone into rather thoroughly. A fourth section (77 pages) deals with the microbiology of food, milk, water, sewage and soils, again with major emphasis on disease prevention. An appendix presents an outline of the classification of bacteria according to the latest edition of Bergey's Manual, a glossary of technical terms, and a list of references to various general and special works on microbiology.

So much space is devoted to descriptions of diseases and to what should properly be considered hygiene rather than bacteriology that much of the subject-matter of microbiology has been omitted or treated very scantily. Such important groups as the anaerobes, the spirochaetes, the Actinomycetes and the autotrophic bacteria are barely mentioned, but there is a discussion of the per capita cost of soap in relation to hardness of water! One may question whether it is desirable to devote so much of the time of a supposedly cultural course to public health, especially when so many students now take college courses in preventive medicine. Such a presentation gives the student a very one-sided picture of microbiology, as though its relation to disease were its sole *raison d'être*.

For such teachers as wish to place the emphasis where this book places it, Dr. Birkeland's text can be recommended. It is very readable, enlivened here and there by bits of verse and anecdote, with much history of disease and sanitation. The reviewer was particularly tickled by the recommendation that the student apply the principle of Koch's postulates to political problems. The style is clear and straightforward, the arrangement orderly. It should be a very easy book to study. The presentation is rather elementary, but in this respect the book is somewhat uneven. Thus the student is not expected to know anything about the structure of a cell, but is expected to know enough chemistry to follow the conversion of tryptophane to scatole and indole.

The teacher who uses this text-book will need to supplement it with a very complete laboratory manual, for it gives little of the technique of the bacteriologist. Particularly, there is not much discussion of the procedures by which species of bacteria are identified or distinguished. Here again the treatment is somewhat uneven. The student is told, for instance, how to distinguish caprine, porcine and bovine strains of *Brucella*, but not how to separate *Escherichia coli* from *Aerobacter aerogenes*. However, such deficiencies can be readily made up in an adequate laboratory course.

ARTHUR T. HENRICI

SOCIETIES AND MEETINGS

NORTH CAROLINA ACADEMY OF SCIENCE

THE forty-second meeting of the North Carolina Academy of Science was held at Duke University on April 30 and May 1. Approximately eighty papers were presented in addition to two symposia related to the war. The first symposium was on "Health and the War," the second on "Nutrition in War Time." The meeting was exceptionally well attended in spite of war restrictions and proved interesting and profitable to the membership. About forty-five new members were added to the roll, and a number of former members were reinstated after a lapse of several years of non-membership.

The following officers were elected: *President,* M. L. Braun, Catawba College; *Vice-President,* Mary E. Yarborough, Meredith College; *New Member of the Executive Committee,* E. H. Hall, of the Woman's College of the University of North Carolina. Bert Cunningham, of Duke University, continues as secretary. Section officers elected are:

Section	*Chairman*	*Secretary*
Botany	F. A. Wolf	E. C. Cocke
Geology	W. F. Prouty	Willard Berry
Physics	W. E. Speas	N. Rosen
Psychology	Elizabeth Duffy	K. Zener
Wild Life	John D. Findley	R. O. Stevens
Zoology	G. T. Hargitt	Eva G. Campbell
Biochemistry	H. W. Ferrill	J. C. Andrews

H. S. Perry was selected to receive the Poteat Award for his noteworthy paper on "Control of Starchy Contamination in Sweet Corn by the Use of the 'Gamete' Gene."

Two awards were made to high-school students—one to Robert Anderson for his essay entitled "Fire in the American Forests" and the other to Donald Hartzog for his exhibition in photography, which included portrait enlargements, stills and microphotographs.

The academy selected State College at Raleigh as the next meeting place.

From the standpoints of interest, attendance and worth of papers, this meeting is considered by many members to be one of the best the academy has had.

BERT CUNNINGHAM, *Secretary*

KENTUCKY ACADEMY OF SCIENCE

THE thirtieth annual meeting of the Kentucky Academy of Science was held at the University of Louisville, April 23 and 24, in five divisional meetings and two general sessions. Affiliated groups represented were Biology, Kentucky Branch, Society of American Bacteriologists and Kentucky Society of Natural History, in joint session; Chemistry; Geology; Psychology and Philosophy; Physics, Astronomy and Mathematics, in joint session. Forty-two papers were read including that of the president, Dr. J. T. Skinner, on "Some Functions of Mineral Elements in Connection with Enzymatic Action," before the