island, although previously collected by a few naturalists and collectors, are still incompletely known to the scientific world. Several scientific organizations have now organized a joint expedition to the island to collect zoological specimens, from protozoa to mammals. Cryptogams, orchids and wood samples will be collected also. The Fan Memorial Institute of Biology will be represented by C. Ho, entomologist, and S. K. Tang, taxidermist, who visited the island a few years ago; the Biological Laboratory of the Science Society of China by Dr. C. C. Wang, invertebrate zoologist, and Mr. K. F. Wang, ichthyologist; the Metropolitan Museum of Natural History by Dr. H. W. Wu, ichthyologist; the National Shantung University by Mr. C. L. Tso, botanist, and Mr. Chungsi H. Liu, anthropologist; and Nankai University by Dr. T. S. Hsiung, invertebrate zoologist. Mr. C. L. Tso, who has had previous experience in the island and is familiar with the natives, will lead the expedition. Mr. K. F. Wang will assist Mr. Tso as second in command. The members of the expedition planned to leave Shanghai for the south about January 15. One party will go to the famous Wu-tchi-shan or Five Fingers Mountain. As the mountain attains the height of more than 2,000 meters, special attention will be given to zoological specimens, especially land vertebrates, in order to study the problem of vertical distribution. Another party will make a coastal survey and pay more attention to fauna of the sea. It is hoped that a rich collection of natural history material will be brought back to the north, before the members of the expedition leave the island at the end of the year.

TSEN-HWANG SHAW

# SCIENTIFIC BOOKS

## TERMITES AND TERMITE CONTROL[1]

CALIFORNIA is a remarkable state, and the people who live there are remarkable people. I often wonder how much of the extraordinary things done by the people out there is due to environment and how much to heredity. California enterprise of to-day is probably due to both of these factors. Surely we people in the East often talk of doing certain big things, only to find out that while we have been talking California has gone ahead and done them.

And so it is about this book. We have talked about the necessity of securing the knowledge and help of scientific men of many special lines of work in our fight against injurious insects, and here California has acted and has produced a volume to which no less than thirty-three authors have contributed. In it are displayed the joint efforts and conclusions of an expert body of men, including engineers, foresters, entomologists, general biologists, plant pathologists, chemists, architects, builders, quarantine experts and heads of great enterprises. What a wonderful combination! And how well it has functioned!

This extraordinary volume results from the enlightened labors of the so-called Termite Investigations Committee and was made possible by funds contributed by more than fifty large commercial organizations, including steamship, railroad, oil, telephone and telegraph, electric, lumber and other important interests. Of the thirty-three authors, seven are entomologists, eight engineers, one forester (one of the engineers is a forest engineer), eight general biologists, three chemists (one of the engineers is a chemical engineer), one architect, one plant quarantine officer and four business executives. And they have been wonderfully well selected. Many of them are acknowledged experts.

The book is divided into four parts: Part I, with 32 chapters, deals with termites and their biology; Part II, with 18 chapters, deals with chemical investigations; Part III, 5 chapters, with termite resistivity of wood and building materials; Part IV, 12 chapters, with prevention and repair of termite damage. This arrangement is both logical and comprehensive. The first part, carrying as it does in its 32 chapters more than 300 pages (nearly one half of the book), is undoubtedly the best treatise in existence relating to its general subject, and the committee and the editor-in-chief, Dr. Kofoid, probably appreciate their great fortune in securing the help in this chapter of at least two of the very foremost investigators of termites who are living to-day—Dr. Thomas E. Snyder, of the U. S. Bureau of Entomology, and Professor S. F. Light, now of the University of California but formerly working in the Philippines and in China. Dr. Snyder contributes four of the chapters and Professor Light sixteen.

Termites have attracted the attention of many people for many years and for many reasons. Many books have been written about them, but nothing that is at once so sound, authoritative and comprehensive as this book has ever been published.

The reviewer will comment no further on the broad

[1] "Termites and Termite Control—A Report to the Termite Investigations Committee." By C. A. Kofoid (editor-in-chief), S. F. Light, A. C. Horner, Merle Randall, W. B. Herms, Earl E. Bowe. 8vo, pp. xvii + 734, frontispiece, 182 illustrations. University of California Press. 1934. $5.00.

knowledge to be gained from reading it, but he does wish to write with the greatest enthusiasm concerning the splendid result of wide cooperation. The termites, always important creatures in certain tropical countries, have been extending their normal geographic ranges largely by the unwitting assistance of man, and in their broadening range they have found that man in his slipshod and blind haste has created innumerable opportunities for their increase. Thus they have been becoming more and more important from the economic point of view. The normal food of termites is cellulose, and, as pointed out by Dr. Kofoid in one of his comprehensive opening chapters, it has been their function—their place in nature—since millions of years to break down dying and dead vegetation and to return it to the soil. But man, in his multifarious efforts to change the processes of nature, has found very many ways of utilizing dead wood and of utilizing it for very many years. At the same time he has been helping the termites to spread and has given them almost infinite chances to multiply. Thus the two forms of life have come into direct antagonism, and termites and termite damage have been increasing at an alarming rate. Within comparatively recent years federal and state entomologists have been appealed to from many directions. People have learned the meaning of the word *termite*. The newspapers have carried the advertisements of commercial "termite destroyers," and much misinformation has been disseminated.

While the Pacific Coast is by no means the only region in the United States to suffer, it has been the Californians who have done the big thing—to form a sound committee and to support it financially. And the committee has interested the very best experts and has reached valuable and far-reaching conclusions. And the University of California has published this big volume, which tells the whole termite story in a most conclusive way. It is a high spot in applied entomology. It shows what man can do and should do in the face of the progress of insect damage.

L. O. HOWARD

## MASS SPECTRA AND ISOTOPES[1]

IT is very timely that this book by Dr. Aston should appear just when experiments on the artificial disintegration of atoms are giving a fresh significance to the subject. The second edition of "Isotopes" appeared in 1924, and this new book brings the subject up to date and emphasizes the recent experimental and theoretical results. In Part I the historical development of the subject is discussed. In Part II we have a detailed discussion of the latest experimental methods. Part III contains a valuable classified summary of the latest data on the separate chemical elements, including the experimental results of Bainbridge's published in the summer of 1933. In Part IV various theoretical aspects are discussed, including the packing effect, the relative abundance of isotopes and elements, the isotope effect in band spectra, and in atomic spectra, also a discussion of methods for separating isotopes.

The book is well illustrated, as it contains 43 figures and 8 plates, with reproductions of apparatus, mass spectra and optical spectra. In addition there are many tables summarizing in a very complete manner our knowledge of the various aspects of the subject. The book will be welcomed by any one interested in the subject of nuclear physics.

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# SCIENTIFIC APPARATUS AND LABORATORY METHODS

## BEYOND URANIUM WITH THE MAGNETO-OPTIC METHOD OF ANALYSIS[1]

THE term "magneto-optic method" was coined by Allison and Murphy[2] to designate a procedure for which they claim applicability to chemical analysis. The apparatus used for such work is shown diagrammatically in Fig. 1. The substance to be examined is placed in cell $B_2$ in the form of a solution, and the positions of minima of light intensity are read on the wire path scale, from which the time lags are computed. The time intervals are supposedly dif-

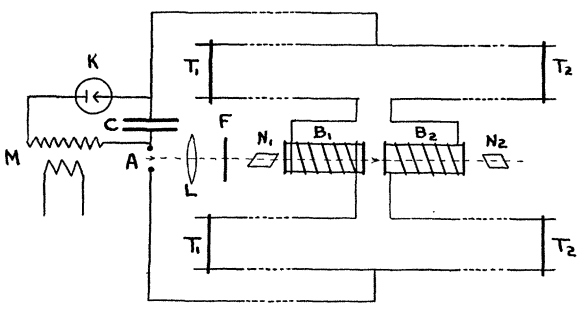


FIG. 1. Diagram of the magneto-optic apparatus. $B_1$, $B_2$, glass cells. $N_1$, $N_2$, Nicol prisms. F, light filter. L, lens. A, spark gap. K, kenotron. M, transformer. C, condenser. $T_1$, $T_2$, trolley.

[1] This note was taken in part from a paper read at the autumn meeting of the National Academy of Sciences, New Haven, Connecticut, November 18, 1931.

[2] Allison and Murphy, *Jour. Am. Chem. Soc.*, 52: 3796, 1930.

[1] "Mass Spectra and Isotopes." By F. W. Aston. Longmans, Green and Company. pp. 243. $4.80.