fied by the availability of existing records for previous years. The State Health Department had not recorded naturally contracted malaria in California since 1945. Thus the designation of the place of exposure was not hampered by the problem of endemicity. The persons exposed were, for the most part, vacationists whose usual residences were in many sections of central California. These persons were drawn almost exclusively from members or individuals associated with the Camp Fire Girls organization whose records contained invaluable information permitting definition and follow up of the population at risk.

An exhaustive investigation has revealed only one possible source for these 34 cases. This person, a Korean veteran, suffered a relapse of *P. vivax* malaria while camping near the summer encampments of the Camp Fire Girls on July 4, 5, 6, 7, 1952. The identification of this person clarified the chain of events and permitted this unique opportunity for observation.

Undoubtedly the most interesting aspect to date has been the establishment of the incubation period. The camps opened late in June and closed early in August. In all probability infective mosquitoes were active in the area after July 10th. All the cases had been in the area after this time and there has not been a case reported in the group who was there before July 10th. Nine of the cases occurred last fall with incubation periods ranging from 12 to 38 days. Twenty-five persons experienced their first attack this spring with incubation periods from 226 to 307 days. The first onset date was August 3, 1952, and the last July 6, 1953.

Thirty-one of the cases were females (ages 9 to 47) and three were males (ages 30, 33, 50). None of them had any previous exposure to malaria, all but two have been laboratory confirmed as *P. vivax* infections. None of the 1953 cases had any symptoms of malaria prior to their onset this spring.

This single source outbreak supports the hypothesis that two-thirds of the *P. vivax* infections contracted in autumn remain clinically latent for eight to nine months (*1*). Whether or not these 25 persons represent the total number of latent cases cannot be stated at this time.

The opportunity to follow the majority of the 1200 campers who were at the camps after July 10 has been facilitated by the number of these who returned to camp this year. The evidence accumulated so far indicates that there have not been any "missed cases" and that the occurrence of additional cases is highly speculative.

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Book Reviews

Methods of Mathematical Physics, Vol. I. Trans. from 2nd German ed. R. Courant and D. Hilbert. New York–London: Interscience, 1953. 561 pp. $9.50.

This English language version of the well-known "Courant-Hilbert" will be very much welcomed, especially by younger physicists in all fields; the older generation will, of course, already have on their shelves a very familiar and much-used copy of the former German edition. The original book, *Methoden der Mathematischen Physik* was written in a period when the interests of mathematicians and physicists were clearly diverging and it presented in a clear and systematic way the results of much mathematical research which was very relevant to the needs of physicists. It succeeded admirably in its purpose of making physicists aware of the essential unity of the mathematical methods which they were employing in widely differing fields. It also provided a much-needed source book for many mathematical developments which were to be found only in the mathematical journals and which might otherwise have been overlooked by physicists.

This new edition is for the most part a very clear and readable translation of the earlier German edition; a large number of minor corrections and modifications have been made without, however, any alteration in the essential pattern of the book. In this respect particularly, it has been most fortunate that one of the original authors has been able to supervise in detail the preparation of this edition. In this first volume, the chapter headings are: The Algebra of Linear Transformations and Quadratic Forms, Series Expansions of Arbitrary Functions, Linear Integral Equations, The Calculus of Variations, Vibration and Eigenvalue Problems, Application of the Calculus of Variations to Eigenvalue Problems, and Special Functions Defined by Eigenvalue Problems. To this last chapter has been added an 11-page appendix that discusses the transformation of spherical harmonics when the coordinate system is rotated about the origin deriving explicit expressions for the transformation coefficients. As a source book, it has been considerably brought up to date by a four-page bibliography referring to many important books and some papers containing more recent developments in the above fields. The index has also been revised and considerably expanded.

The influence of this book in the development of physical theory has been significant. For example, as will be seen from the chapter headings above, the mathematical methods described were just those which

were needed in the development of the theory of quantum mechanics, which was beginning to make great strides at about the time of the publication of the first edition. For the quantum theoretician in particular, it will always be an almost indispensable handbook, but also mathematical physicists in all other fields will find a useful account of many of the mathematical methods they need. It is to be hoped that Professor Courant's plan to rewrite and modernize the book, although postponed for the present, will be achieved in the not-too-distant future, especially as there are still so many fields of mathematics of great importance to physicists, such as the theory of singular integral equations and of iterative processes, for which no treatment of comparable viewpoint yet exists.

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Plant Diseases in Orchard, Nursery and Garden Crops. Ernst Gram and Anna Weber; trans. from 2nd Danish ed. by Evelyn Ramsden; R. W. G. Dennis, Ed. New York: Philosophical Library; London: Macdonald, 1953. 618 pp. Illus. + color plates. $18.50.

This book is a handsome production, beautifully printed on a glossy paper, and illustrated by a large number of excellent black-and-white photographs and drawings. Ten color plates are included; some of these are not distinguished by veracity of color. As the title indicates, it deals only with diseases of orchard, nursery, and garden crops—primarily those of northern Europe. The authors, who are leading Danish pathologists, prepared the first edition under the shadow of World War II, largely for use by Danish growers. A second edition was required by 1944, and it is this which, after translation, has been edited and revised by Dr. Dennis of the Royal Botanic Gardens, at Kew, to adapt it to the needs of an English audience. In his words, the editor "has also taken the opportunity . . . to include references to much English work, published since 1940, not available in Denmark until after the second Danish edition was published." Also added is an account of the legislative control measures practised in Great Britain. It is stated that this book was compiled primarily for the use of the growers themselves, which may well be so, but it does assume an awareness and understanding of mycological and pathological terminology that would not be possessed by most small growers in the U.S. The treatment is essentally practical, however, rather than academic, but it could hardly be described as popular.

The book is divided into five sections, each with a bibliography. The first section which deals with the nature of plant diseases and disorders, including nutritional deficiencies and chemical toxicities, includes few citations to American authors, but in the following three sections which deal, respectively, with Tree and Bush Fruit, Vegetables and Herbaceous Fruit, and Ornamental Plants and Trees, some relevant U.S. references are given. A useful feature of these sections is the inclusion of keys for the identification of diseases of some of the major plants. The final section treats, somewhat perfunctorily, disease control practices. Certain of these recommendations are at variance with those developed for the same crop in North America—particularly perhaps is this the case with the fruit crops. Some of the newer fungicides and protectants are not mentioned, perhaps because of unavailability in Denmark.

Within the limitations referred to above this book has much to commend it; perhaps the most appropriate comment to make would be that there might well be a place for a North American edition of "Gram and Weber." This, the English edition, will be of interest here primarily to students and libraries.

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Mr Tompkins Learns the Facts of Life. George Gamow. New York: Cambridge Univ. Press, 1953. 88 pp. Illus. $2.75.

Professor Gamow's account of the adventures of Mr Tompkins in the field of biology does not merit a long review in a publication read primarily by scientists. The biological scientist has at hand better information than is contained in the book, and the physical scientist will want a more authoritative popularization than can be supplied by an author summarizing material remote from his field of specialization.

The general reader will be entertained, will not be irked by the numerous factual errors, and will gain a very considerable amount of important information. He will also, perhaps, become convinced that there is nothing wrong with biology that a few biologists can't fix. Theoretical physicists, Mr Tompkins is authoritatively informed, should be able to solve biological problems by the application of mathematical tools. It is to be hoped that this is true, because any device for bypassing a subject as uninteresting as chemistry would be welcomed by both biologists and physicists.

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