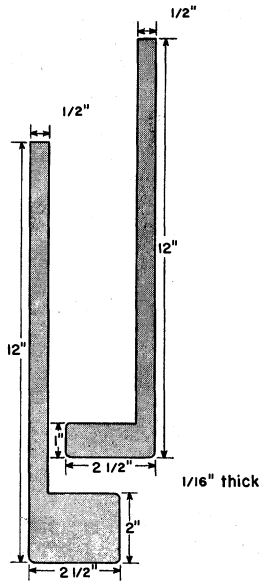

FIG. 1. Masks.

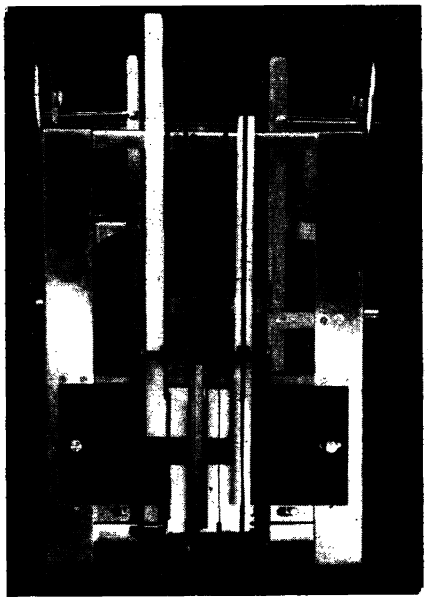

FIG. 2. Masks in cell holder.

areas of high light transmission in order to effect a balance in overall photographic exposure would be a solution to this problem. Such a device has been developed for use with the Aminco-Stern electrophoretic apparatus (Universal Model)[1] and is described below.

Masking sheets are cut from thin (1/16 inch) opaque plastic (Plexiglas or similar type) to the dimensions shown in Fig. 1. These "golf-club" shapes are placed in between the shutter bracket and plate of the cell holder, and each adjusted to the desired level by means of the top of the strip. Proper tension on the masks is maintained by pressure from one of the vertical shutters of the cell holder. Masks may be used singly or in a pair (as shown in Fig. 2) to provide the desired effect of either single or double masking, respectively. Thus for colored solutions one mask is used to cover the non-colored portion of the cell, while two are used to increase the exposure time on an albumin peak by masking out the areas on both sides of that peak. A typical example of the former situation is illustrated in Fig. 3.

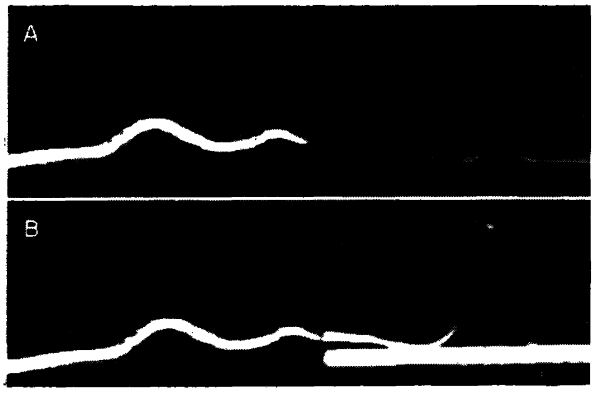

FIG. 3. Highly colored serum. A, film exposed for 7 sec without masking. B, same serum, but film exposed for 7 sec on the left and 60 sec on the right using a single mask.

[1] Made by the American Instrument Company, Inc., Silver Spring, Maryland.

Although this device is designed for the Aminco-Stern Universal Model Analytical Double-Cell Holder, masking strips of analogous dimensions and shapes may be used on other Aminco models.

A. I. SCHEPARTZ

Allergy Research Laboratory
Veterans Administration Hospital
Aspinwall, Pennsylvania

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Outbreak of Malaria with Prolonged Incubation Period in California, a Nonendemic Area[1]

THE recent appearance of 34 related cases of malaria in one area of California has afforded an unusual opportunity to observe the natural history of *P. vivax* malaria in a nonendemic area. The investigation of this outbreak, started in August 1952, is still in progress. The interest expressed by several malariologists in the rather unique circumstances surrounding this outbreak has prompted this preliminary report.

All elements of a well-organized scientific study were naturally combined to permit an epidemiologic evaluation of malaria in a nonimmune population living in a nonendemic locality. One relapsed case exposed to innumerable anopheline mosquitoes at a semi-isolated summer vacation area of over 1800 Camp Fire Girls localized the situation.

The epidemiologic investigation was greatly simpli-

[1] From California State Department of Public Health. Acknowledgment is made to Roy Fritz, Senior Scientist, U.S.P.H.S., who is co-author of final report in manuscript.

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.

ROSEMARY BRUNETTI

Bureau of Acute Communicable Diseases
Berkeley, California

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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