observation period, although they did not appear to be unfertile.

In the Canal Zone there are many seepage areas that persist for about one month after the beginning of the dry season. These areas then dry up and no water is present in them until the rains begin in the latter part of April or the first week of May. The earth in these areas is dry and fissured, except when fallen leaves and grass cover the ground, in which case the soil is slightly moist but crumbly and will not pack when squeezed by hand.

On April 10, 1939, the superficial earth from a number of these seepage areas in the vicinity of Chiva Chiva, C. Z., was collected. It was estimated that the areas in which the collections were made had been dry for at least one month and no rains had been experienced in this area during that time. The slightly moist earth was collected, placed in sterile pans and then covered with tap water containing a small amount of hay infusion. The water and hay infusion were carefully handled and protected inside a screened building to preclude any mosquitoes gaining access to them. Two days after the addition of the water, a number of first instar Culex, Aedes, Psorophera and four anopheline larvae were present in the pans. The anopheline larvae developed out to be three *A. punctimacula* and one *A. albimanus*.

Additional samples of earth were collected in the Fort Clayton, C. Z., area on April 17 and 26, and on May 1 at Fort Davis, C. Z. The same precautions were exercised in the collection and handling of these specimens as reported for April 10. Three *A. albimanus*, one *A. tarsimaculatus* and five *A. punctimacula* larvae were recovered from these specimens.

Considering the method of collection and handling of this material, we feel that the larvae found had to come from eggs present in the moist earth collected from the dry seepage areas. These findings are insufficient to generally conclude that hibernating eggs are one of the ways that anophelines survive the dry season in the tropics, but the evidence seems to indicate it as a possibility. Careful observations and tests will be made prior to and during the 1940 dry season to determine the significance of the findings reported in this communication.

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DISTRIBUTION OF ARTIFACTS MADE FROM CHALCEDONY OF CERRO PEDERNAL, NEW MEXICO

RECENTLY Kirk Bryan[1] has called attention to the chalcedony or chert bed on Cerro Pedernal and San Pedro Mountain in north central New Mexico. This distinctive pearl-gray chalcedony is in part flecked by red and yellowish splotches. Occasional small holes are scattered at random throughout the material.

This chalcedony seems to have been quarried and manufactured over a period from the historic past to a time of considerable antiquity. Any material as distinctive and suitable for the making of artifacts should have been carried far and have been regionally dispersed by trade.

A point of this chalcedony some 4.6 inches long and 1.5 inches wide, of the type usually considered to be a knife, has been found recently in the Moreno Valley in the Sangre de Cristo Mountains, some seventy miles east and north of the known outcrops. Three other artifacts, a broken, but large oval blade, a tanged point and an "end and side" scraper, all of "Plains" type, have been found in a collection gathered locally near Mora, New Mexico, on the eastern slope of the Sangre de Cristo Mountains.

These four artifacts are without question made from the chalcedony of Cerro Pedernal, and further examination of collections may reveal an even wider distribution of this material, which appears to have been used by Indians of both Pueblo and Plains affinities, as well as by more ancient peoples.

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[1] Kirk Bryan, SCIENCE, 87: 343–346, 1938.

THE PRESENCE OF NON-OXYGEN-COMBINING (INACTIVE) HEMOGLOBIN IN THE BLOOD OF NORMAL INDIVIDUALS[1]

IT is generally assumed that all the hemoglobin circulating in the blood is capable of combining with oxygen and carbon monoxide, so that the capacity of the blood for oxygen absorption may be taken as a measure for the amount of hemoglobin.

It is found, however, that on employment of van Slyke and Hiller's method—after which the ability of a specimen of blood to combine with carbon monoxide (the active hemoglobin) is determined, whereafter reduction is performed with sodium hydrosulfite followed by a new determination of the carbon monoxide fixation power (the total hemoglobin)—several cases show a not inconsiderable amount of a kind of hemoglobin that is capable of binding carbon monoxide only after this reduction.

In 82 examinations carried out on healthy persons and patients who had not taken any methemoglobin-producing remedies there was found an average amount of the above-mentioned substance corresponding to a carbon monoxide fixation of 0.64 vol. per cent. = 3.5 per cent. hemoglobin (Haldane), varying from 0–2.64 vol. per cent. (0–14.5 per cent. Hb. (Haldane)). In about two thirds of the cases the amount

[1] From the Medical Department B of the Rigshospital, Copenhagen (Physician-in-chief, Professor E. Warburg, M.D.).

of this substance was less than 5 per cent. of the total amount of hemoglobin; only in a few cases (four altogether) did it exceed 10 per cent. of the total hemoglobin.

It was not practicable to identify this substance by ordinary spectroscopic examination; for the present its composition and the cause of its appearance will have to be looked upon as unknown.

According to these findings, however, the so-called active oxygen fixation power must be considered a very unreliable measure for the amount of hemoglobin. Indeed, in fourteen comparative colorimetric (Hellige's universal colorimeter) and gasometric blood examinations the colorimetric values were found to deviate considerably more from the active values than from the total.

Thus it can not be recommended to standardize colorimetric hemometers by means of the oxygen capacity.

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SCIENTIFIC BOOKS

MATTER AND LIGHT

Matter and Light. By LOUIS DE BROGLIE. Translated by W. H. Johnston, B.A. 300 pp. New York: W. W. Norton and Company, Inc. $3.50.

WE have here a book written by an author outstanding in his field and noted for the clarity of his expression. In these matters the volume leaves nothing to be desired.

The book can hardly be regarded as one for the general reader. While at the outset matters of interest to the layman and comprehensible to him are presented, the author soon reaches a degree of sophistication in which the subjects treated would only have significance to a physicist and, indeed, to one who had thought fairly deeply along the lines of the modern quantum theory.

The nature of the various sections is such that there is a great deal of overlapping. We do not have here one book written in an ordered sequence, but rather a number of articles dealing with more or less the same subject in different words. This has some advantages and some disadvantages. Its advantages lie in the fact that the subject is one which is developed rapidly and presents to the minds of many a picture of artificiality and abstractness. For this reason, even a repetition of the ideas in different words is helpful in gaining more complete understanding of the matter. On the other hand, the type of treatment cited is not, perhaps, the best one for a reader whose purpose is to seek an ordered development of the subject.

In conclusion, it may be said that the book ranks as a very important contribution to the literature of the subject and will be enjoyed by a fairly large group of scholars who have the necessary background to understand it.

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WAVELENGTH TABLES

Wavelength Tables. Measured and compiled under the direction of GEORGE R. HARRISON. xxviii + 429 pp. Boston: The Technology Press, Massachusetts Institute of Technology. New York: Wiley and Sons, Inc. London: Chapman and Hall, Ltd. 1939. $15.00.

THE book comprises a systematic survey of spectrum lines giving intensities in arc, spark or discharge tube of more than 100,000 spectrum lines most strongly emitted between 10,000 and 2,000 A by the atomic elements under normal conditions of excitation. The measurements and compilation have been made under the direction of Professor George R. Harrison by staff members of the spectroscopy laboratory of the Massachusetts Institute of Technology, assisted by the Works Progress Administration.

There is a clearly written introduction summarizing the scheme of the book, and the notation, and dealing with several other matters such as the precision of the wavelengths, the nature of the apparatus used in the Massachusetts Institute of Technology observations, sources of error, etc.

There is a table stating the numbers of lines included for the various elements, a table giving the sensitive lines of the elements compiled from combinations of empirical and theoretical data selected from the literature, the lines being listed according to the elements. Then follows a table in which the aforesaid sensitive lines are arranged in order of wavelengths. Next comes a key to the symbols for authors and references, and finally what comprises practically the whole volume of the book, a table of the lines in order of wavelengths extending over the ranges already cited.

The material is set forth in a clear form, and the volume is of a size such as to provide for absence of crowding and for convenience of handling. The work will undoubtedly be found of great value to those working in both the pure and applied fields of spectroscopy.

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