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.

WM. S. STONE
FRANÇOIS H. K. REYNOLDS

ARMY MEDICAL RESEARCH BOARD,
ANCON, C. Z.

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.

LOUIS L. RAY

CAMBRIDGE, MASS.

[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.).