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PRESENT AND POST-WAR HEALTH PROBLEMS IN CONNECTION WITH PARASITIC DISEASES[1]

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As a nation without imperialistic aims and with few colonial possessions, we have viewed with considerable nonchalance the tropical disease problems of other countries. Now that we are engaged in an all-out war on many fronts, we are frantically endeavoring to absorb and put into practice knowledge of these exotic diseases. For the moment, most of these problems are military problems, but sooner or later they are apt to become public health problems of direct concern to our civilian population.

Our past military campaigns in tropical areas have been confined to small-scale operations in Cuba, Puerto Rico, the Philippines and briefly in Central America. Now our troops are serving by the thousands in such hotbeds of exotic disease as Africa, India, China and the South Pacific. While every effort is being made by our military authorities to practice effective preventive medicine in these areas, it is inevitable that some of our troops will contract one or more tropical diseases and will return to the United States as infected individuals. Already the homeward trek of these men has begun. The return of military personnel from all these areas will probably constitute a cumulative introduction of tropical disease equaled or exceeded only by such introduction during the slave-trading days. It is well, therefore, to consider some of the possibilities which confront us and to ponder the relationship of these possibilities to civilian health.

Some of the diseases of greatest importance from a military standpoint and possibly from a subsequent civilian standpoint are those caused by protozoan and

[1] Presented before the Section on Epidemiology, War-time Conference, American Public Health Association, New York, October 12, 1943.

Of the three immunologically different strains of equine encephalomyelitis viruses known to be present in the Western Hemisphere, fatal human cases due to the Eastern type virus were established by Fothergill, Dingle, Faber and Connerly[2] in 1938, and somewhat later in the same year Howitt[3] reported the isolation of the Western type virus from a fatal human case.

Although Venezuelan type equine encephalomyelitis in man may have been suspected,[4] there is record of only two cases having been reported. These were of a very mild type and occurred in the United States in laboratory personnel working with the virus.[5]

The present report records the first instance in which the Venezuelan strain of equine encephalomyelitis virus has been proven to occur naturally in man, producing a fatal infection. Further, it establishes the fact that all three strains of equine encephalomyelitis viruses known to be present in the Western Hemisphere are capable of producing a fatal encephalitis in man.

From available information, this is the first outbreak of equine encephalomyelitis in Trinidad, B. W. I., and immunity tests have proven it to have been caused by the Venezuelan strain of virus.[6]

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

MULTIPLE ELECTRODE HOLDER FOR THE HORSLEY-CLARKE INSTRUMENT

FOR electroencephalographic study of the interior of the animal brain an apparatus to hold several electrodes in place simultaneously is essential. Specifications were submitted to Mr. R. Kittel, Chicago, the maker of the Horsley-Clarke instrument, who designed and constructed a satisfactory attachment. Three bakelite rectangles, each 46 × 57 mm and about 1 mm thick, were drilled with holes to fit No. 11 bead needles coated with insulating varnish. The holes are in 41 rows 1 mm apart, and each row has 31 holes 1 mm apart. The three plates were then fastened together with screws at the corners, using metal sleeves on the screws to hold the plates 5 mm apart. The complete assembly is equivalent to a block 13.5 mm thick. It is mounted on a brass frame attached by screws at four points to the upper lateral bars of the Horsley-Clarke instrument. When in place, needles in the holes are vertical with respect to the brain. An adjustment on the frame allows the multiple holder to be moved laterally, so that the center row of holes can be placed exactly over the midline.

Insulated bead needles inserted through the holes in the holder into the brain keep their positions without fastening. The depth of a needle point in the brain is controlled by measuring the length of needle exposed above the upper surface of the multiple holder. Since this upper surface is 46 mm above the interaural plane, and a needle is 53 mm in length, the needle point is at the interaural plane if 7 mm of needle remains exposed. Connections to the amplifier and stimulating device are made by inserting fine copper wires through the eyes of the needles. As many needles can be used at one time as there are points on the selector switches.

The holes in the multiple carrier now in use will do for 26-gauge hypodermic needle tubing if it is desired to use shielded electrodes. It was not necessary to order the drilling of so many holes. The attachment would be just as useful, and less expensive, if it had about 800 holes, properly placed, instead of 1,271.

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[2] L. D. Fothergill, J. H. Dingle, S. Faber and M. L. Connerly, *New England Jour. Med.*, September 22, 1938.
[3] B. Howitt, SCIENCE, 88, 455, 1938.
[4] Mentioned in: A. S. Lleras and L. Figueroa, Biol. Inst. Nac. Hig. Semper Martinez, 1942, 8, 3.
[5] J. Casals, E. C. Curren and L. Thomas, *Jour. Exp. Med.*, 77, 521, 1943.
[6] Since this manuscript was submitted an additional eight non-fatal cases of infection acquired in laboratory workers were reported by E. H. Lennette and H. Koprowski, *Jour. Am. Med. Asn.*, 123: 1088, 1943.

BOOKS RECEIVED

GLASSER, OTTO and OTHERS. *Medical Physics.* Illustrated. Pp. xlvi + 1744. The Year Book Publishers, Inc. $18.00.

JOHNSON, WILLIAM H. and LOUIS V. NEWKIRK. *Modern Drafting.* Illustrated. Pp. vii + 197. Macmillan Company. $2.50.

NEWMARK, MAXIM. *Illustrated Technical Dictionary.* Pp. 352. The Philosophical Library. $5.00.

POPE, FRANCIS and ARTHUR S. OTIS. *The Airplane Power Plant.* Illustrated. Pp. iii + 188. World Book Company.

REEVE, WILLIAM DAVID. *Essential Mathematics.* Illustrated. Pp. iv + 282. The Odyssey Press.

Rose's Foundations of Nutrition. Fourth edition. Revised by GRACE MACLEOD and CLARA MAE TAYLOR. Illustrated. Pp. xi + 594. Macmillan Company. $3.75.

SHUTE, WILLIAM GEORGE, WILLIAM WRIGHT SHIRK, GEORGE FORBES PORTER and COURTENAY HEMENWAY. *An Introduction to Navigation and Nautical Astronomy.* Illustrated. Pp. xiv + 457. Macmillan Company. $4.50.