

low rates of excretion in the acute experiment.

Renal clearance of calcium and phosphorus are being investigated. Ca^{45} is being used as a tracer for the exogenously administered calcium. These studies are in progress and will be reported in a subsequent communication.

Summary. The rate of excretion of calcium was studied following its intravenous infusion in normals, and in patients with various bone diseases. Subnormal rates were found in patients with an increased tendency to bone

deposition. Increased rates were found in patients with osteolytic activity. The good correlation between these data and metabolic balance studies suggests the usefulness of this test in defining the state of skeletal activity and the effects of therapy thereon.

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Encephalitis in Midwest VI. Western Equine Encephalomyelitis Virus Isolated from *Aedes dorsalis* Meigen. (1949)

GEORGE A. THOMPSON,* BEATRICE F. HOWITT,† RACHAEL GORRIE,† AND
T. AIDAN COCKBURN.*

From the Communicable Disease Center, Public Health Service, Federal Security Agency, Atlanta, Ga.

This paper reports the isolation of Western Equine Encephalomyelitis virus (WEE) from each of two batches of *Aedes dorsalis* (Meigen). These viruses were recovered during a study in Weld County, Colo., in 1950 in which specimens of 7 species of mosquitoes were routinely tested for neurotropic viruses. Natural infection of *Aedes* mosquitoes by a neurotropic virus was first reported by Hammon, Reeves, and Galindo(1) with 2 recoveries of western equine encephalomyelitis (WEE) virus from *Aedes dorsalis* (Meigen) in the San Joaquin Valley, Calif., in 1943. The previous year, Hammon and associates (2) failed to recover virus in tests of 4,866 *A. dorsalis* and 2,637 other *Aedes* mosquitoes collected in the Yakima Valley, Washington during an outbreak of encephalitis. On the other hand, WEE virus was isolated 41 times from 9,466 *Culex tarsalis* Coquillette

collected simultaneously with the *Aedes*. Furthermore, Hammon and Reeves(3) state that in tests of 25,162 *Aedes* mosquitoes from 5 western, midwestern, and southwestern states, the western equine virus was isolated only twice in contrast with an infection rate for *C. tarsalis* of 1 of each 225 tested during the 3-year period. It is possible that the vectors and hosts of W.E.E. virus in the midwestern region differ from those in the hot valleys of California. However, only four isolations of virus so far have been reported from mosquitoes in the midwest, three in North Dakota(4,5) and one in Nebraska(6); all were from *C. tarsalis*. The isolations of virus from *A. dorsalis* reported in this paper are the first from the midwest area.

Technics. The mosquitoes were captured by aspirator tube in natural resting places or

* Encephalitis Investigations Unit, Office of Midwestern CDC Services, Kansas City, Kan.

† Communicable Disease Center, Virus and Rickettsial Section, Montgomery, Ala.

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2. Hammon, W. McD., Reeves, W. C., Benner, S. R., and Brookman, B., *J. A. M. A.*, 1945, v128, 1133.

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4. Unpublished record, U.S.P.H.S. Rocky Mountain Laboratory, Hamilton, Montana, vide Jenkins, D. W., *Am. J. Trop. Med.*, 1950, v30, 909.

5. Wenner, H. A., Kamitsuka P., Kramer, M. C., Cockburn, T. A., Price, E. R., *Public Health Reports*, in press.

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TABLE I. Results of Tests of Mosquitoes for Viruses, Weld County, Col., May-August, 1950.

Mosquito species	No. tested	Neurotropic viruses isolated WEE
<i>Culex tarsalis</i>	1141	0
<i>Culiseta inornata</i>	197	0
<i>Aedes dorsalis</i>	4492	2
<i>vexans</i>	1928	0
<i>cataphylla</i>	64	0
<i>sticticus</i>	57	0
<i>trivittatus</i>	6	0
Total	7885	2

while attempting to bite, anesthetized lightly with ether, separated by species into ampoules, the ampoules sealed in an acetylene flame, and the still living specimens frozen on dry ice. Ten to 50 mosquitoes were sealed in each ampoule and sent frozen to the CDC Virus and Rickettsial Section, Montgomery, Ala., for test. In the laboratory the mosquitoes were triturated in a sterile mortar with buffered saline containing 30% by volume of inactivated normal rabbit serum, diluted to a volume of 1 to 3 ml depending on the number present, and the suspension centrifuged in a cold room at 13,000 rpm in an angle centrifuge. The supernatant fluid was then inoculated both intracerebrally (0.02 ml) and intraperitoneally (0.04 ml) into 12- to 14-day-old white mice. The brains of mice which died or showed symptoms of encephalitis were removed, tested for bacteria, and suspensions of them inoculated intracerebrally into fresh mice. Finally, the isolated viruses were identified serologically by cross protection tests.

Results. The study in the summer of 1950 in Weld County, Colorado, resulted in the

collection and testing of a total of 7,885 mosquitoes, comprising 7 species as shown in Table I. All the mosquitoes were captured between May 2nd and August 29th.

The viruses isolated from each of 2 ampoules of *A. dorsalis* had the following characteristics: Each strain passed through a Seitz filter pad; was free from bacteria; was lethal to mice in dilutions of $10^{-6.5}$ to $10^{-8.5}$; and was neutralized by an antiserum of western equine encephalomyelitis virus, but not by that of eastern equine encephalomyelitis or the St. Louis encephalitis viruses. The identification of the virus strains as those of western equine encephalomyelitis was completed by the challenge inoculation of guinea pigs previously immunized against this virus.

Among the mosquitoes identified throughout the summer as *A. dorsalis*, it was noted that considerable numbers of a dark form appeared which were readily distinguishable, morphologically, from the normal *A. dorsalis*. The dark form of *A. dorsalis* has also been noted in California(7) and one of the 2 lots found infected with WEE virus consisted entirely of the dark form. The dark form was routinely placed in ampoules separate from the normal *A. dorsalis*.

Summary. 7885 mosquitoes of seven species were collected in Weld County, Colo., in 1951 and tested for neurotropic viruses. Two strains of western equine encephalomyelitis virus were recovered from 2 lots of *Aedes dorsalis*.

7. Thurman, D., 1951, personal communication.

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Encephalitis in Midwest VIII. Neutralizing Antibodies in Sera of Small Wild Mammals. Colorado 1950. (1950)

GLENN A. HUTSON,* BEATRICE F. HOWITT,† AND T. AIDAN COCKBURN.*

From Communicable Disease Center, Public Health Service, Federal Security Agency.

A series of exploratory investigations were carried out by the Communicable Disease

Center in Weld County, Colorado, in 1950, in an attempt to find a promising lead which might result in the clarification of the ecology of the viruses of western equine encephalo-

* Kansas City, Kan.

† Montgomery, Ala.