

MEDICINE

St. Louis Virus Isolated

Sleeping sickness germ found in California for first time. Definite evidence that fowl are the main reservoir of the disease.

► WITH THE ISOLATION for the first time of the St. Louis encephalitis virus in California and definite evidence that fowl are the main reservoir of the disease, scientists are fitting together the pieces of what may become a general pattern for this so-called sleeping sickness in the Western states.

Scientists in the Hooper Foundation for Medical Research at the University of California Medical School isolated the St. Louis type virus from a common type mosquito caught in Kern County. It had been generally conceded that the virus was present, but definite proof had been lacking previously.

Hooper researchers Dr. W. C. Reeves and Dr. W. McD. Hammon have found the following sleeping sickness pattern:

Fowl, both domestic and wild, are the principal reservoirs of the virus. Mosquitoes, especially the common species, *Culex tarsalis*, feed on the fowl, then bite horses and man. Preference for the fowl makes the barnyard an excellent reservoir, and biting of man and horses causes occasional sharp epidemics in Western states.

This pattern has repeated itself in two major studies of epidemics, one in the Yakima Valley, Wash., 1941-43, and the other in Kern County, Calif., which occurred in 1943. The latter study is still not completed.

In both studies the investigators collected thousands of mosquitoes, ticks, fleas, lice, flies, kissing bugs and bedbugs. Examination of the stomach contents of these specimens showed that only mosquitoes were infected with the virus and that they had fed on fowl.

While the virus produces no disease in fowl, it does cause serious illness in both horses and man, affecting the nervous system and sometimes causing damage to the brain.

Vaccination is effective, but is not recommended on a mass scale, because the incidence of the disease is so low.

Horse encephalitis, of both the western and St. Louis type, is confined in the West ordinarily to hot valleys, and it occurs in man mainly in rural areas and the suburbs of large cities where chickens are kept.

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one million kilometers wide, which Dr. Kopal interprets as a huge stellar prominence. The light-curve of changes during this eclipse was very peculiar, and the Harvard astronomer thinks it was just a matter of chance that the fainter star passed behind this particular "prominence" in its primary's atmosphere. This rare event may not occur again for several cycles, so he suggests very careful observations of future eclipses of Zeta Aurigae to see how often this phenomenon repeats itself.

Among these same lines, spectroscopic analysis of the weaker lines in the spectra of the star Arcturus and of the star 70 Ophiuchi A, made by Suzanne E. A. van Dijke, National Research Fellow at Mount Wilson Observatory, show the relative differences between these stars. Arcturus is a giant orange star, while 70 Ophiuchi is a dwarf of the same type. Stratification of elements in the atmosphere of the giant star was found to be similar to the layer arrangement in the atmosphere of the sun. Thus, the solar atmosphere appears to be a prototype of stellar atmospheric structure, although on a smaller scale than in giants like Arcturus and Zeta Aurigae.

Nevertheless, work at the Leander McCormick Observatory of the University of Virginia, reported by Emma T. R. Williams and A. N. Vyssotsky, indicates that stars are not all of the same genesis. These investigators have found that red giant stars appear to form a more spherical system of stars in the Milky Way galaxy than do normal white A-type stars.

"Red giants," said Dr. Vyssotsky, "seem to conform to a very different code of laws from those governing A-type stars. The red giants are mostly nearer the galactic center, but distributed farther from its plane, so they form a more spherical system than do the A stars, which hug the plane but spread out well beyond the sun's distance from the center."

This work on stars in our own galaxy gives results similar to those procured by Dr. Walter Baade, of Mount Wilson Observatory, for the exterior galaxy, M33, in Triangulum, one of the nearest of other stellar systems. Dr. Baade found that the red giants of M33 are highly concentrated towards the central spheroid, whereas the A-type and other white stars are characteristic of the arms. Dr. Vyssotsky pointed out this similarity to his own results.

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ASTRONOMY

New Giant Prominence

May have been discovered on one component of the double star Zeta Aurigae. May be nearly as large as the sun itself, Dr. Kopal states.

► A GIANT PROMINENCE, similar to the huge flame-like clouds of gas seen erupting from the surface of the sun, may have been discovered on one component of the double star Zeta Aurigae, according to a paper presented at the American Astronomical Society meeting in New York by Dr. Zdenek Kopal, of Harvard College Observatory. The huge cloud of gas is sufficiently dense to almost completely hide the light of a smaller bright companion star. It may be nearly as large as the sun itself.

Three times in about eight years, the blue-white B member of this double star

is eclipsed by its giant red companion. Preceding and following the total phase, during which the B or helium star is invisible behind the large red K member, the B star undergoes a series of partial obscurations behind portions of the immense atmosphere around the K star. This atmosphere, which is as thick as one-fifth the diameter of the larger star, is in several layers, and a regular sequence of changes occurs as the B star passes behind these layers successively.

In the eclipse of December 18, 1939, to January 28, 1940, however, the blue star was obscured by a huge cloud about