

an accidental carrier of some pathogenic organism. According to reports the same flora may be in areas in which 'trembles' occur as in those free from it, and milk-sickness is also said to occur where no vegetation grows (inclosed pens). The disease also has disappeared from an area after simply clearing the woodland where it occurred and turning it into pasture. Again, severe epidemics have occurred in winter when the foliage has disappeared, which would tend to exclude the higher, non-evergreen plants as the cause of this disorder."

The later experiments however, of Curtis and Wolf, as well as those of Marsh and Clawson (1917) are conclusive in showing that, apart from the evident connection of milk-sickness with the symptoms caused by the ingestion of snakeroot, there is no doubt that this plant is poisonous to stock. The former says: ". . . 'white snakeroot' had previously been claimed by Moseley to cause trembles in animals. This claim has been substantiated by experiments with sheep in which green plants of *E. ageratoides* were fed"; and the latter: ". . . it has been clearly demonstrated that *E. verticillifolium* must be counted as one of the rather important stock-poisoning plants which produces serious losses of domestic animals." These experiments also showed that the plant loses a large part of its toxicity in drying.

In the following year, 1918, the experiments of Wolf, Curtis & Kaupp, in North Carolina, also proved that trembles and milksickness were due to this plant. According to them, the disease may appear "at any season of the year, but is most prevalent in late summer and autumn, especially when other vegetation is scarce because of drought. The disease is frequently fatal in domestic animals while the sequel of milksickness in man, in case of recovery, is lasting debility." "During the experimentation, 31 fatal cases of trembles and milksickness have been developed among the 44 ewes and lambs that were employed in some phase of the experimentation involving the feeding of white snakeroot. Two of these lambs contracted genuine cases of milksickness by suckling their mothers, demonstrating that the disease may be transmitted through the milk. This fact has for a long time been a matter of common belief among farmers. Furthermore, animals in lactation, having access to white snakeroot, may be apparently normal yet are capable of transmitting milksickness through their milk."

ANIMALS AFFECTED:—The experiments referred to above proved that white snakeroot was poisonous to all domestic animals.

SYMPTOMS:—The action of the poison is cumulative. The general symptoms as given by Marsh and Clawson are, trembling, especially of the nose and legs, more marked after exercise; depression and inactivity; constipation with nausea and vomiting; pronounced weakness; difficulty in standing, the animals sometimes remaining down for a prolonged period before death.