

## EXIT HAWK—ENTER MOUSE.

### RODENT PLAGUES COMING.

AS a nuisance to agriculture, the meadow mouse ranks high and its work is far more insidious than that of most animals or insects, as its depredations usually go on completely unsuspected in hay, clover and alfalfa fields. Tests have shown that it actually takes 23 lbs. of green food a year to support one meadow mouse, not to mention what is cut down and not fully eaten. As 100 meadow mice to the acre is not unusual (during "mouse plagues" they have been estimated at over 1,000 to the acre) it is easy to see that this number will reduce the crop yield by a ton of green or a half-ton of dry hay per acre. The U.S. Department of Agriculture estimates that on the assumption that probably no farm land to-day averages less than 10 meadow mice per acre, the loss on the 65,000,000 acres of hay fields in the country runs to a minimum of 3,000,000 tons of hay a year, and more if predator destruction allows mouse populations to rise above the 10-per-acre figure.

That meadow mouse populations are generally above this figure of 10 per acre (and tending to increase) is apparent in many regions, as the continued killing of rodent predators (Hawks, Owls, snakes and carnivorous mammals) reduces the mouse's "natural enemies." The meadow mouse has often been called the "staff of life" for carnivores (meat eaters) because it transforms annually an enormous amount of vegetable food into animal food which is then available to support a great variety of carnivorous birds and mammals. So long as the meadow mice are here we need all those species that prey upon them, although, of course, meadow mice themselves in certain numbers do have their own important role to play in nature's scheme.

Attempts at artificial control of meadow mice, through poison, appear little short of ridiculous when one considers the reproductive rate with which nature has endowed the meadow mouse, presumably so that it might survive in a world where it normally is preyed upon by so many "enemies." If provided with an abundance of food they have been found to produce 17 litters a year from 2 to 9 young, the average being 5.

As the young are ready to breed at the age of 25 days, the potential increase of one pair exceeds a million individuals in a year's time.\*

Many people simply cannot believe this figure until they work it out for themselves, and one wonders how anything is able to keep meadow mice in check. The answer, though, seems to be that under normal conditions the rate at which they breed just equals and balances the rate at which predators catch and eat them. For this to be true, predators and other causes must destroy 43 mice a year for every mouse of the normal, average population; that is, they must crop 430 mice a year on each acre, on the basis of a normal breeding population of 10 per acre as assumed above, if the average mouse population of that area is not to rise.

Of course, many factors tend to vary this. A high population level leads to a greater availability of mice to natural enemies (assuming there are some left), or as is often said, the mice become more vulnerable to predation, and as a result the number taken exceeds the number raised and the population level tends to be reduced. On the other hand, nature has ways of looking out for all her wild animals and should the meadow mouse population be lower than normal they will be more difficult to find and catch, causing some predators to eat fewer and causing many to move to other regions where the food supply is better.

The ability to move about is a characteristic of most animals. Among the species that prey on others it reaches its highest development as an adaptation to fluctuations in available food. In this way they save themselves from death if their normal food becomes difficult to obtain in a certain area, as it may from time to time, as a result of many possible causes.

The extent to which animals move varies greatly, but birds as a group represent the maximum of mobility, and because of their ability to shift rapidly over long distances, they are outstandingly effective as controls on plant-

\* Breeding, Feeding and Other Life Habits of Meadow Mice," Vernon Bailey, *Journal of Agricultural Research*, February 23, 1924.