

face. The object-lesson method is the favorite one among entomologists in the class-room. Why not in the field application of our work?

This demonstration work is *not experimental work*. We use only the methods that are well established and proven beyond controversy; it involves nothing new, doubtful or investigational. We studiously avoid, for the sake of simplicity, the finer points of detail of which even entomologists are yet uncertain. Nor is it the same as the practical field test, since in field test work there is no invitation to the public to attend, watch and question.

No doubt there are states where such work as this would appeal to a smaller class than it does here. But we doubt whether there is a single state in which the *majority* of the orchards which are set for market purposes are sprayed systematically. We grant that the majority of the commercial growers may spray, because they have learned how, but there are hundreds who set out market orchards and whose orchards fail and remain utterly neglected because the benefits of spraying are never brought home to them in sufficiently forcible manner to be convincing.

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## NOTES ON MITES AFFECTING CHICKENS

By GLENN W. HERRICK

The young chickens in the poultry yards at Agricultural College, Mississippi, have been curiously affected for the past two summers with a species of mite, or what is known in common parlance as "red-bugs."

On May 28, 1908, we examined two young chickens that were evidently diseased and found the sides of the body, beneath the wings where the feathers were scarce, bearing, here and there, rather large red nodules or tubercles, usually capped around the edges of the top at least with a hard scab or crust. In the center of the crust of each tubercle we found the red distended abdomens of numerous mites, with their heads buried in the tissues. When the scab was removed the mites came with it and left a comparatively large cavity in the center of the tubercle.

The mites were evidently gregarious and their presence in such numbers had stimulated the tissues until the nodule had been formed. Within the nodules were masses of whitish, fat-like tissue, composed of long, tapering cells. The mites were almost buried in these masses. Occasionally we found one isolated mite, especially between the secondary quill feathers of the wings. In each case its head was buried in the flesh like a tick.

On June 17 we examined other chicks from the same brood, which were now, of course, somewhat larger.

On chick No. 1 we found nodules now healing from which the mites had evidently escaped. We also found fresh tubercles on the sides of the body with mites in them, also isolated mites on the under sides of the wings.

On chick No. 2, on the right side of the abdomen, I found two very large tubercles. On one of them I counted the red abdomens of seventeen mites closely packed together like red berries, with their heads buried in the tissues of the tubercle like ticks.

On chick No. 3 I found a very large tubercle, showing the bodies of nine mites, and on chick No. 4 a tubercle was found with the bodies of nineteen mites clustered at the apex. All of these chickens were affected with other smaller clusters of mites, and with a few isolated ones on the under sides of the wings.

I submitted specimens of these mites to Mr. Banks for identification, and he wrote that they were "*Leptus*, that is, the larvæ of *Trombidium*. No species have as yet been bred in this country, so it is impossible to tell to what species your material belongs."

Professor Kerr, in observing the effect of these mites on the young chickens, says they soon succumb to the mite attacks. The chick seems to contract a diarrhoea, grows weaker and weaker, and finally dies. He thinks these mites are responsible for a high mortality among chickens in the South.

It is quite probable that these mites breed among weeds and tall grass, where the sun's rays cannot penetrate and where moisture conditions are favorable. It seems to me that young chicks liable to attacks from these mites should be confined to areas kept clear from weeds and tall grass. The mites will not be apt to breed in closely cropped grass and in an absence of shade. The heat of the sun would probably prevent their development.

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## INSECTS AND LEGISLATION

By E. P. FELT, *Albany, N. Y.*

It is interesting to note the effect of insect depredations upon legislation by our state and federal governments. The early laws provided simply for the study of injurious insects and plant diseases and for the dissemination of information concerning them through the press by means of reports and bulletins. Dr. T. W. Harris of Massachusetts was the first American entomologist to receive compensation from