THE CHICKEN MITE.

By GLENN W. HERRICK.

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So far as the author is aware, there is no one disease or parasite of poultry in this State that causes so much trouble, or so much financial loss to those that grow chickens either for the home table or for the market, as the chicken mite (Dermanyssus gallinae). As the illustration on the cover shows, it has an oval shaped body with four pairs of rather long slender legs. Its general appearance is much like that of a tick and in fact it is closely related to the ticks of cattle, sheep, etc. It is a little less than one twenty-fifth of an inch long but is plainly visible to the naked eye.

When full of blood its body is plainly red in color but normally it is rather light gray. The tiny jaws of the mite are formed for sucking and the pest lives by sucking the blood from its host. It is also probably able to live upon the moisture and other materials found in decaying substances and droppings. It is almost impossible to set a hen, under ordinary conditions, after the first of May in this latitude without in a few days finding the nest simply swarming with multitudes of these little parasites. If allowed to go undisturbed the hen in sheer desperation will leave the nest which is a sufficient sign of their ability to cause trouble, for when a "settin" hen leaves a nest of her own accord there must be a tremendous provocation. I have seen the mites so numerous that they actually hung in festoons about the sides of the nest boxes. In such cases if the sitting hen be in the same house with the laying hens the mites will spread over the roosts and become abundant everywhere, after

*We have not yet succeeded in working out the life history of this mite and as nothing much is known of it, we simply pass that by for the time being.*
which it is difficult to get rid of them. They are very annoying to persons, getting on the hands and body, thereby causing the most uncomfortable and unpleasant sensations. In fact when they grow so very numerous in the vicinity of horse or cow stables they often become of considerable annoyance to these domestic animals.

Filth and lack of light as a cause of the great increase of these pests.—From my work with the chicken mite extending over two years, I am convinced that the most potent cause of the presence and increase of these parasites is filth under which may be included, droppings, decaying and decayed eggs and bits of decayed material of almost any kind. The young mites which may be recognized by their lighter color are found in immense numbers in the filth that has sifted through the straw and lies in the bottom and in the corners and cracks of the nest. If a partly hatched egg happens to be broken in the nest the mites literally swarm over it. The filthier a nest becomes from droppings and broken eggs the more abundant become the mites.

Lack of light is another cause of the presence and increase of the mites. Most people believe that any thing will answer for a poultry house. It is seldom indeed, that a window is put in, and the only light that enters finds its way through cracks and a small door which may or may not be allowed to stand open. No wonder that mites and other parasites develop in such a house. Some people maintain that the only way to get rid of mites is to have no roof on the house but to allow the wind and weather full access to all parts of the roosts and nests. In the first place, this is exceedingly ill treatment for the poultry, and in the second place, I believe the efficacy of such treatment lies in the great flood of light and sunshine that enters the house and which may be obtained in a more humane way, namely, through glass windows or windows that may, at least, be closed in a storm or in the coldest weather. Where sash and glass cannot be had to close the opening, a hinged door, like the one shown in figure II, that can be closed in stormy weather or at night, may be easily made. If desired, poultry wire netting may be nailed over the opening to exclude owls, foxes, etc., and to shut in any fowls that one may
wish to keep up at any time. Such an arrangement will give the desired light and air, which will have a most salutary effect in keeping the house dry and free from disease germs. The house should be high and roomy so that one can walk in and go about with some degree of comfort and pleasure. It is a place that one should visit every day for the purpose of giving it some attention. A poultry house

Fig. II.—Showing Chicken house with large doors on the sides to admit light and air on warm sunny days. Note the openings closed with poultry wire netting.
that one has to crawl through a small door to enter and then go
groping around in darkness half bent to the ground for fear of bump-
ing one's head against the roof will receive very few visits and very
scant attention.

**Nests.**—Early in my experiments, it became evident that cleanli-
ness was of prime importance and that access must be had to every
crack and crevice in the nest boxes especially, in order that every

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![Diagram](image)

**Fig. III.**—Showing nest boxes and supports. The pieces c, c, are the only ones fastened to the building.

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bit of filth might be removed and that every part of the boxes might
be treated so that no mites could escape by hiding away in the nooks
and crannies. To this end I devised a method of building the nest
boxes as follows: from a board, one inch by twelve inches, pieces one
foot long were cut to form the partitions between the nests. To hold
them upright and in position, a piece one inch by three inches was
nailed across the top, even with the back ends of the partitions and
another piece of the same size in front, even with the lower edges of
the partitions. These pieces are shown at a, and b, in figure III.
Against the side of the house two supports (c, c),—of any desired
height—were nailed and on this a twelve inch board (d) was laid to
form the bottom of the nests. The only portion of these nest boxes
that was fastened to the house was the supports (c, c). Consequent-
ly the whole thing could be removed at any time and since
there were very few corners and cracks in which dirt could accumu-
late the nest boxes could be easily and thoroughly cleaned and every
part treated to an application of any desired substance.

Roosts.—Here again it was our desire to have something for
the hens to roost upon that could be easily and thoroughly cleaned

Fig. IV.—Showing the simple perches that may be easily
removed from the house at any time.
and treated. Ordinarily, perches are nailed to the house and usually in such a position that one cannot get at them for the purpose of cleaning them or around them for the purpose of cleaning the floor beneath. In constructing the roosts for our work three pieces, each one inch by three inches, were placed at an equal distance apart and across these were nailed, at intervals of one foot, poles cut from young saplings in the woods. The whole is shown in figure IV. Of course the width of the perches and the height will be determined by the size of the poultry house and the number of hens to occupy them. Moreover instead of nailing the roosts to the house they were stood against the end of the house at an angle sufficient to protect the lower rows of the fowls from the droppings of those above. By this arrangement the perches could be removed from the house at any time and every part carefully cleaned while at the same time the house was made clear of any obstructions in the way of cleaning it.

Inside of house.—The whole object in planning the inside of the poultry house was to maintain it free from anything that might afford a hiding place for the mites and prevent their being reached by whatever insecticides we chose to use. The foregoing plan of arranging the perches and nest boxes gave an opportunity of removing everything from the house except the supports for the nest boxes, thus leaving practically four bare walls that could be treated with ease and with thoroughness. With such a house even though it become infested with myriads of mites it would be possible, I believe, to get rid of them. Every part of the walls could be easily treated with whitewash, carbolic acid, kerosene or any other substance so that hardly a mite could escape. Besides, the treatment is so easy that several applications could be made, if necessary, without any great labor or loss of time.

Direct remedies.—There are all sorts of substances recommended for destroying and preventing chicken mites and many of them are of value. We pinned our faith to three principal ones after having built our house according to the above suggestions. The house was 8x10 with a shingle roof and cost a trifle over twelve dollars complete, certainly within the reach of every farmer. In fact
the same house would not cost the average farmer nearly so much because he could build it himself.

**Cleaning, together with lime and sulphur.**—Once every *two weeks* the perches were removed and cleaned and the house thoroughly swept out. Every bit of dirt and droppings was swept from the house and the roosts were then replaced. Then a mixture of dry air-slacked lime three parts, and sulphur one part, was thrown into the air, up to the roof—the windows being closed—on the perches, against the sides of the house, etc., until the atmosphere inside the house was filled with lime and sulphur. This was allowed to settle as it willed much of it falling into the nests and on the sitting hens, for of course they were not removed. The floor (earth) was given special attention and a quantity of lime and sulphur was scattered over it both to kill any mites that might be there and to dry out the moisture caused by the droppings. This method of procedure was kept up all through the season of chicken raising. When a house is once thoroughly infested with mites this cleaning will have to be done oftener, at least until the house is once free from them. I believe that ordinarily once a week is better than once in two weeks. *A chicken house cannot be kept too clean.*

**Crude petroleum or kerosene.**—For destroying those insects that have to be killed by applications to the outside of the body or as we say by contact, crude petroleum is becoming one of the most effective substances known. It retains that odor, peculiar to itself, for a longer time than kerosene and with certain insects this is without doubt efficacious in repelling them. Moreover it does not evaporate as readily as kerosene and maintains its greasy qualities much longer thereby lessening the need for so frequent applications. Chicken mites are quickly killed when actually coated with crude petroleum.

In my work with the chicken mite, crude petroleum was used freely and often. Before setting a hen the old straw in the nest was always burned and the nest thoroughly cleaned, by removing the partitions, thus giving access to every part of the nest as we have already shown in our description of the structure of the nests.
every part of the bottom plank and partitions, outside and inside, was given a coat of crude petroleum. In this way one can be assured that the nests, at least, are free from mites to begin with, an important consideration. The oil was applied by hand with an old rag. Of course it may be sprayed on with a spray pump but there is no advantage in the latter over the former so far as could be seen. After treating the nests to the oil they were put in place, new straw put in and in the bottom of the nest were placed six to ten moth balls or camphor balls. The nests retain the odor of the oil for days and even weeks, but more than that the greasiness of the oil, sufficient to cause the death of the mites is retained on the nests for a considerable interval. Although mites existed in abundance in the early stages of our experiment in the nests of the sitting hens we were able to get rid of them and to remain free of them thereafter by the use of the foregoing remedies. I am not prepared to say just what effect the moth balls had as they were not tried alone. I should urgently advise putting some of the lime and sulphur in the bottoms of the nests before putting in the straw.

It is not convenient perhaps for everyone to use crude petroleum because it is not easily obtainable, although if several farmers in a neighborhood would get together and ask their grocer to order a barrel he would no doubt, be glad to do so. When crude petroleum is not obtainable ordinary kerosene oil may be used instead. It is just as effective in destroying the mites but evaporates more quickly, thus losing its odor and greasy qualities sooner than crude petroleum.

Dust bath for hens.—It is a common sight to see hens and chickens literally wallowing in the dry dust. They manage to form a hollow place in the ground to conform with the body and in this they lie, scratching with the feet, fluttering the wings, and elevating the feathers until they stand all fluffy, and loose over the body. By scratching, the fowls loosen and pulverize the soil which is worked down in among the feathers. This practice among fowls is not done wholly for pleasure although they apparently enjoy it. The fine dust is an excellent insecticide for it gets into the breathing
pores of insects stopping up these openings thereby causing death. There can be no doubt that this wallowing in the dust is instinctive with the hen whereby she keeps herself free from lice and mites. There are seasons of the year when fowls cannot find dry dusty places in which to wallow, therefore one should be provided for them by filling a large shallow box with road dust and setting it where it will keep dry but where as much light and sunshine as possible can reach it.

To clear an infested house of mites.—It often happens that a poultry house becomes infested with mites from floor to roof and in every nook and cranny of the building. If the house is not too valuable a very good way of getting rid of them is to burn it and build anew. If this cannot be afforded then tear out all the roosts and nests leaving only the four bare walls. Clean it out thoroughly from top to bottom, treat it with kerosene or crude petroleum applied with a spray pump and give it two good fumigations forty-eight hours apart with sulphur burned on live coals. Follow this treatment with lime and sulphur as often as twice a week for two or three weeks. It is best to build new perches and nests. If the old ones are put back they should be thoroughly cleaned, washed with boiling water and then treated carefully with kerosene.

Isolation of poultry house.—We have already referred to the fact that at times, when fowls roost in a barn or in a room adjoining the horse or cow stalls mites become troublesome to these animals and to man as well whenever he goes into the stalls. For this reason poultry houses should be set some distance from the other farm buildings.

Isolation of sitting hens.—All of our work with the mite was done in a house containing both the laying hens and sitting hens. This was done because these are the conditions under which most hens are set in this State. It is however much more desirable to have the sitting hens apart by themselves in a separate room or even separate building. A lady from Missouri writing for an agricultural paper speaks as follows: "My hens are all set in a room
fitted up for that purpose with nests like those in which they lay. When one is ready to sit, and her service is wanted, a clean box treated with kerosene and carbolic acid is sprinkled with lime and a good, soft nest built therein generally of dry grass. Some people practice setting their hens in boxes here and there around the yard. This is unnecessary and unnecessarily exposes the hen to rain and storm. It must be remembered that even though the sitting hens be placed by themselves they must be attended to just as thoroughly as otherwise and the same treatment given to the room and nests as under other conditions.

Selection and treatment of the sitting hen.—The first requisite to success in raising chickens is the selection of the right kind of a brood hen; and we are speaking now only from the point of view of keeping rid of mites, yet look at it from any point of view and the hen plays an important role in the final result. A quiet, motherly, easily handled hen should be selected, because it may happen that she will need to be removed and the eggs washed or nest cleaned. It not unfrequently happens that an egg gets broken. If so it should be removed and the others with which it came in contact washed in warm water but wiped dry before putting back under the hen. If droppings occur in the nest these should be removed. It is well, if the house is not treated with lime and sulphur as described, to dust insect powder on the hen, at least once a week. With the foregoing precautions and with the right kind of a hen no one ought to meet with much trouble from chicken mites.

Summary.—To keep free of chicken mites, first of all, build a roomy, well-lighted, well-ventilated poultry house.

Arrange it so that the perches and nest boxes can be removed and easily cleaned.

Keep the house as clean inside as is possible.

Treat as often as once in two weeks, at least, with dry, air-slaked lime and sulphur.

Before setting a hen treat the nest boxes to a coat of crude pe-
Petroleum or kerosene and put lime and sulphur in the bottom of the nest boxes.

Burn the straw after a hen is through sitting.

Give a sitting hen some attention and keep the nest clean.

Place in the nest half a dozen moth balls taking care that they do not touch the eggs.