

POULTRY.

Notes on Poultry-House Construction.

BY MRS. IDA E. TILSON.

There is no more significant sign of the progress of poultry culture than the opening of poultry departments at the different State experiment farms. Sometimes experimental buildings are beyond the reach of ordinary mortals, and the experiments conducted are of somewhat doubtful value to those who cannot duplicate conditions. Minnesota has just begun in a modest way. A poultry-house, not beyond the financial ability of any good farmer to copy, has been built. The location is naturally well drained and gravelly. At my visit, in early March, two incubators were on hand, one already running in the cellar, and a pleasant room above was about to be fitted up as an office for Prof. Drew, who has charge. There was already a pen each of Lt. Brahmas, Buff Cochins, Rose-combed B. Leghorns, and Barred P. Rocks.

The movable perches are planed and rounded 2x4's, simply resting within grooves in upright supports. It was proposed to turn some of the perches broad side up, because the heavy Brahmas are inclined to sit down on droppings board, and the Cochins even prefer the bedding at bottom of pen. The platform for droppings is movable, with movable nests under. Through small doors, opening into a common alley, either platform or nests can be reached by arm without entering pen. The ventilators are inclosed in partition wall between pens and alley, and instead of a loft being cut off overhead, the outline of the rafters was followed by the ceiling.

Next, I visited Prof. Aldridge, the instructor on architecture at the Agricultural College, whose pupils, apropos of the new State hen-house, had been exercising themselves on specifications and plans for poultry-houses. Prof. Aldridge advanced this very valuable idea to me, that the smaller an air-chamber is the more effectual he finds it. In a larger air-chamber we are so apt to get a circulation, while dead air is what we want; reminding me of a boy who asked at a Wisconsin Institute, "Why not let fowls roost outdoors, if air in walls is such a good thing?" But though air is so poor a conductor that the smith will cool his iron even in hot water rather than in cold air, each draught takes away a little heat and brings a little cold; hence, too many draughts are "too much of a good thing." Therefore, Prof. Aldridge advises following contour of rafters, as above, unless the bottom of loft is itself another and smaller air-chamber, formed by boarding both above and below joists. My own first lofts were made by planks laid overhead. Later, without disturbing them, buckskin paper and matched flooring were put on below joists, making a warm house, because the original loft proved little protection, though I had not then studied the reason. The Professor further suggested that the air space between the outer and inner walls could be halved by paper bent inward, between each studdings, and held in its bent position by lath. Another thickness of paper, unbent, might be placed on top and directly under the boards. Inside walls entirely of paper, uncovered by boards, have been used by friends, but the matching cannot be perfect enough to keep out parasites, and even tarred paper soon loses its repelling odor. I have found, during my travels, that the most successful plastered houses are also back-plastered.

At Paynesville, Minn., I visited a stone house. The original wall was thick, but so porous that an air-chamber and inside ceiling had to be added. There was then no dampness except overhead, where the owner proposed cutting off a loft next. Much complaint about brick hen-houses being heard on my rounds, I have always suggested that they be painted outside, double walled, and the wall connectives be of wood instead of brick, because we know we can make a filter of brick, but a water-tight joint of wood, which illustrates the difference in conducting power; all of which Prof. Aldridge approved. He also mentioned iron connectives, because, although iron is too good a conductor, yet little of it need be used. If the inside of air space is also made of brick, let a more porous kind be used there, which will gradually diffuse and scatter the moisture. Complaints of dampness and sweating have also come to him, and the question, whether a hen-house could be built too warm? He does not consider poultry-quarters can be too well constructed for a northern climate, but may be so ill ventilated that the moisture is not properly carried out; hence, settles and shows where it comes into contact with the windows, which are especially cold, and with the coldest parts of walls, like single doors, thin roof, etc. Apropos of this, there was reported at Pine City (Minn.) Institute, a double-walled hen-house, costing much, yet very damp. I recommended one tubular ventilator to every ten feet in length of house, said ventilator from 4x4 inches to 6x6, a slide at bottom modifying size of opening, according to trial. Had it not been for the kindly persuasion of another practical poulterer, the ventilators might not have gone in, which subsequently proved such a success in dissipating dampness. Whenever my duties permitted, the past winter, I visited new school-houses to see how they are ventilated. All agree on ventilating from the bottom, because the carbonic acid gas breathed out sinks just as soon as it begins to cool, but the

results have not all been perfect successes, and there is yet much to learn upon the subject. The tubular shafts in my own hen-houses were added after the houses were built, hence it was easiest to put them in center and go up through ridge of my "A" roofs. By good length of tube above roof, like chimneys, and good, free suction across top, with constant use, I get the carbonic gas out before "thick enough to cut with a knife," till a very good atmosphere is created, even down low where the hens walk. I had supposed a tube built in outside wall would answer as well, being neater and less in the way, if one were building anew. But, according to Prof. Aldridge, I stumbled on the best plan, because a tube in outside wall, unless on south (sunny side), would expose rising gases to such a cold surface on part of the flue that it is doubtful whether they could or would rise. Sometimes there would be a draught down instead of up, or a double draught. I suggested a tube within room and one in outside wall, which it was thought would certainly secure good circulation. Since my return home I have been thinking this out. Warm air surely will not rise alongside cold walls, but rising and spreading from middle of room is cooled by touching the roof and side walls, then must follow them to the bottom; hence, our best chance for an upward current is at the center. A scuttle-hole overhead, one side from roosts, which I do not call a ventilator nor use much, is an excellent regulator to open occasionally day-times for the outgo of extra heat and dampness.

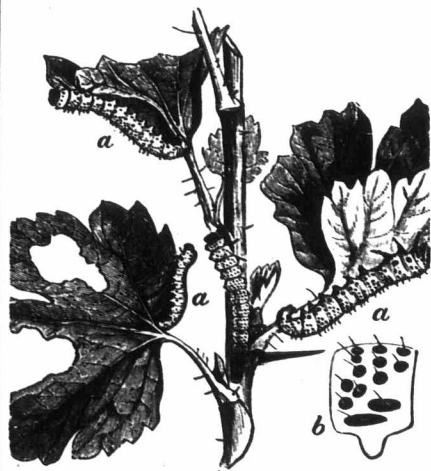
Housecleaning for Hens.

The hen-house requires "housecleaning" in the spring as much as does any other building. If this is properly attended to the chickens will keep in good health and grow faster than they could in a dirty building. Clean away the droppings and scatter dry earth and land plaster upon the floor. A coat of whitewash, having a little carbolic acid added, will sweeten the place and help to rid it of lice. Whitewashing is easily done by means of a spray pump. A good aid to lice-destruction is to fumigate with sulphur thrown upon live coals while the house is tightly closed. The door should remain closed for three or four hours. This matter is worthy of attention, as it is often the presence of lice and filth that drives the hens to leave the house to lay in out-of-the-way places, and to roost in trees instead of in the hen-house.

ENTOMOLOGY.

Gooseberry and Currant Sawfly.

The gooseberry and currant sawfly (*Nematus reberis*) caterpillars, when full-grown, are about an inch in length, and are shown in various positions in the accompanying figure A; B gives the position of the black spots upon a magnified joint of the body. They are pale green in color, sprinkled with dots or patches of black. Previous to entering the pupal stage they moult, their skins coming out paler in color and free of dark spots. They bury themselves in the ground about two inches or more, according to the nature of the soil, where they spin their cocoons, and in them they turn to crystals.



keep his eyes open, because a few hours of neglect often means bushes completely stripped of their foliage. This is a common occurrence in almost every farmer's garden before he has learned to watch for and combat successfully these pests.

For dressings to the leaves when attack is present: Sulphur or soot dusted on in the morning before the dew is off has been found to act well; hellebore powder is, however, the most general and satisfactory remedy, so far as clearing the caterpillars is concerned, but, being a poison, it should be used with care, never allowing it to be applied to large berries that are soon to be picked without careful washing. Afterwards a convenient mode of application is to dust it on the bushes while damp (pure or mixed with flour), or if a sprayer is at hand it may be sprayed on—a teaspoonful to a gallon of water. One or two applications usually end the trouble.

There are one hundred and fifty-three trotters in the 2.10 list, and it took one hundred and eleven stallions to get them. There are one hundred and fifty-one mares represented in this list.

VETERINARY.

Dealing with Tuberculosis in Cattle.

Mr. John Speir, of Scotland, whose contributions to the ADVOCATE, after his visit to Canada as a farm delegate a few years ago, will be remembered, was last year acting as Assistant Royal Commissioner upon the condition of agriculture, in which capacity he had occasion to make special inquiries regarding tuberculosis, which in some quarters he found more prevalent than he had supposed. In his recent lecture on the subject there is in the main an agreement with the able paper by Prin. McFadyen, of the Royal Veterinary College, a digest of which appeared in the Feb. 1st ADVOCATE. He explained that the tubercle bacilli was a low form of vegetable life, that it produced a poison scientifically called a ptomaine, and that it was the poison which was the direct cause of death, not the microbe.

Discussing the influences concerned in spreading this disease, he said that while we had improved the buildings in which we housed our stock from the point of view of comfort, he felt almost certain that the old thatch roof with dry stone or mud-built walls was probably a more healthy building than those of later date. Winter dairying and the continuous housing of stock during winter he put down as the most potent causes of the increase of the disease in recent years. The ADVOCATE has frequently uttered a caution against the close-confinement practice so persistently recommended by dairy platform enthusiasts, for the reason that while comfort is all right and necessary, pure air and light are too often neglected, as the condition of many dairy stables from which city milk supplies are drawn amply prove. Perhaps the most glaring instances of this have been disclosed in the eastern and northern States. Mr. Speir quoted Prof. Bang in favor of the proper use of the tuberculin test and isolation of affected stock afterwards; by which, with the other needed precautions, in a few years a clear bill of health at comparatively trifling cost could be shown in any herd. Old Country farm steadings, he said, adapted themselves very readily to providing separate houses for the healthy and reacting animals when housed in winter, and in summer the risk of infection was reduced to a minimum, even with animals grazing in the same pasture. The principal sources of infection by ingestion, he said, were from the milk of a cow with a tuberculous udder, from troughs recently used by tuberculous animals, and from the animals licking themselves. He called attention to the danger of milk from a tuberculous udder.

He quoted Dr. Woodhead's results of the use of tuberculous meat, and showed that carcasses might be used without fear where the disease only existed in an organ or gland, and also explained the reason why the bacilli were not spread throughout the whole carcass. He also explained that, small as microbes were, they were heavier than air, and in the still air of a byre with little or no ventilation, the air of which was loaded with moisture and from ten to one hundred times the quantity of carbonic acid in the outside air, the microbes gradually settled down in the lower strata and among the hair of the cows' backs. When licking itself the following day, that animal can run a risk of infecting itself by ingestion, more especially if its stomach or bowels were in an inflamed state from any cause.

Neither to conceptional infection (though he thought there was greater risk to the female than the male, and to mother than to the offspring) nor to heredity did the lecturer attach anything like the importance that he did to infection from inhalation and ingestion. He pointed out that Bang, by adopting precautions against infection by inhalation and ingestion, had bred from animals which were unhealthy both on the male and the female side, and during the four years that this system had been carried on, with over one hundred breeding animals, only one calf out of some hundreds has as yet shown any symptoms of the disease, either as calves or since. The first requisite in getting rid of the disease was to test the animals at least once, if not twice, a year; then keep the reacting ones in a separate building. All the calves from the healthy and unhealthy cows might, if desired, be reared; but they should be fed only on the milk of the healthy part of the herd. These precautions, continuously and rigorously applied, would soon render any herd quite healthy at very little expense; and, coupled with healthy surroundings, the disease might easily be reduced to infinitesimal proportions. In answer to a question, Mr. Speir said tuberculin of itself seemed to have no curative effect. In reply to another question, he said carcasses sold and bought in good faith as being free from disease should be paid by the public when destroyed in the public interest.

It was very gratifying to note, we might here add, that in about 5,000 pairs of lungs of cattle from farmers and dealers (collected under direction of Prof. McEachran, Dominion Live Stock Inspector, during one month last fall, at both private and public slaughtering places throughout Canada) the cases of tuberculosis were exceedingly rare, none being discovered except at Quebec City; Halifax, N. S.; and St. John, N. B. This verified a similar investigation the year previous.

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