

## INCUBATORS and BROODERS.



We invite correspondence for this important department of commercial poultry raising, which is growing so rapidly in Canada.

### NOTES ON THE MORTALITY OF INCUBATOR CHICKS.

RHODE ISLAND AGRICULTURAL EXPERIMENT STATION BULLETIN.

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(Concluded.)

Much more important are the fatalities grouped under

c. due to imperfect sanitation. The veriest tyro at poultry raising knows that freedom from filth and vermin is a primary requisite, and no reference to diseases thus arising is here necessary. But particular attention should be directed to the fact that a brooder may be scrupulously clean and absolutely louseless, yet be the hiding place of disease germs far more to be feared, on account of the insidious nature of their attack and the difficulty of detecting and combating their inroads. Such a germ is that which causes tuberculosis. Tuberculosis is very prevalent among fowls. According to observations 15.1 per cent. of the chicks which died were considered to be more or less affected. Of these, 113 chicks had tubercles in the lungs; five on the walls of the heart; five on the walls of the gizzard; one on the intestine; and one in the testes. Tuberculosis is to be suspected when whitish, cheesy lumps are to be seen on any of the internal organs. Many dressers of poultry have remarked upon the frequency of its occurrence in both young and adult birds. It is of some comfort to know that au-

thorities are inclined to regard the germs which cause tuberculosis in animals as different from those causing "consumption" in man. Yet from all points of view the tuberculosis germ is to be feared and fought. Special attention is called to the evidence given above of its infectious nature. Sunlight is the best and cheapest germicide for the tubercle bacillus. We found that the simple expedient of removing the "hovers" and setting them out of doors in the full sun all day reduced the evidence of tuberculosis in the post-mortem examinations from nearly 50 per cent. to only 3 per cent.

Our yards were singularly free from "gapes" and roup. Some mortality was due to sudden colds, exposure, etc., thirteen cases being diagnosed more or less correctly as pneumonia. The total number of post-mortems which disclosed congested lungs was 243, or 29.4 per cent. of the cases.

By far the greatest number of cases showed symptoms resulting from

d. improperly balanced ration or improper feeding. Six hundred and twenty-five, or 75.6 per cent., had trouble in the gall bladder, closure of the gall duct, leading to an often enormous accumulation of gall, and a peculiar paleness of the intestines. When this condition obtains, it can be readily recognized. The green gall stains the adjacent organs, even the abdominal wall, and a distinctly green area is conspicuous on the outside of the abdominal wall close to the hinder edge of the breast-bone and to the right of the midline.

In order to ascertain the cause of the mortality a feeding experiment was instituted. Two hundred and nineteen chicks of several breeds hatched under similar conditions were placed in four pens of approximately fifty each, all conditions being identical; so

far as apparent, except in the single factor of food. All pens, for thirty days after hatching, were fed at the same time as much as they would eat. The composition of the ration varied in each case.

To pen 10A (52 chicks) was fed a diet of equal parts of egg (those "tested out" from the incubators), liver, and grain (cracked corn, wheat, barley) boiled together and chopped fine. For green food, plenty of sliced onion, oat sprouts, etc. The mortality was 3.9 per cent., of which not one showed digestive trouble. The chicks grew very rapidly and at the end of two weeks were much larger and brighter than those in the companion yards.

Pen 8A (63 chicks) fed on grain and green stuff. All animal proteid omitted from ration. Mortality 9.5 per cent., of which 75 per cent. had digestive troubles.

Pen 12A (58 chicks) fed on grain alone. All animal proteid and green stuff omitted. Mortality 32.7 per cent., of which 76.5 per cent. showed digestive troubles.

Pen 13A (46 chicks) fed on egg, liver, and green stuff. All

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