fit of such that this series of articles is being prepared for "The Farmer's Advocate." There is, of course, a never-ending mystery about the deeper things of bee-nature, but the fundamentals are easily mastered.

POULTRY.

O. A. C. Outdoor Hopper.

Keen interest has been aroused by the illustrated description of Prof. W. R. Graham's model poultry house, published in "The Farmer's Advocate" of March 16th. It has brough forth a request for a similar diagram of his outdoor feed hopper. This has been supplied by our O. A. C. correspondent, whose drawings of the side and end views are reproduced herewith. Following are specifications:

It is made of $\frac{7}{8}$-inch lumber, and the slats over the front are $\frac{3}{8}$-inch by $1\frac{5}{8}$-inch. Material required to build:

2 pieces $\frac{7}{8}$ in. x 12 in. x 1 ft. 8 in.—ends.
1 piece $\frac{7}{8}$ in. x 12 in. x 2 ft. $10\frac{1}{4}$ in.—bottom.
2 pieces $\frac{7}{8}$ in. x $3\frac{3}{4}$ in. x 3 ft.—bottom sides.
2 pieces $\frac{7}{8}$ in. x $2\frac{1}{2}$ in. x 3 ft.—top sides.
18 pieces $\frac{3}{8}$ in. x $1\frac{5}{8}$ in. x 10 in.—side strips.
1 piece $\frac{1}{2}$ in. x 16 in. x 2 ft. $10\frac{1}{4}$ in.—center div.
2 pieces $\frac{1}{2}$ in. x 10 in. x 2 ft. $10\frac{1}{4}$ in.—side divs.
2 pieces $\frac{1}{2}$ in. x 12 in. x 3 ft. $2\frac{1}{2}$ in.—cover.
2 pieces $\frac{7}{8}$ in. x $6\frac{1}{2}$ in. x 1 ft. 8 in.—cover ends.

Sulphur for Feather-pulling.

Editor "The Farmer's Advocate":

In reading "The Farmer's Advocate" this spring, I have noticed several communications from correspondents complaining of hens feather eating. I have had this trouble for several winters, and have tried different remedies. In February and March the hens would start picking the feathers off one another in the region of the oil-bottle and the cushion. When the feathers were off, they would sometimes sample the hen herself. On several occasions I have found the mangled remains of hens killed in this manner. I tried feeding meat, but it seemed to only aggravate the trouble.

This spring my hens started in to eat feathers again, so I saw plainly that something had to be done, and, by experimenting, I found that milk, given as a drink, went a long way towards preventing the trouble; but, where the habit had obtained a hold, it would not cure it. The only sure and effective cure that I have found for feather-eating is sulphur. Feed it in mash or shake a handful on the drinking trough. Feed the sulphur regularly, and you will have no further trouble with feather-eating fowls. The sulphur, if fed in very heavy doses, is liable to cause a looseness in the bowels, but it will not be serious; in fact, I have found the feeding of sulphur to act as a stimulant to egg production.

My hens have always before them a box filled with ashes, but there are always a few in the flock that will not dust themselves; consequently, these few are liable to have lice. Now, since feeding sulphur regularly, I have been unable to find any trace of vermin in the flock. This result only comes after feeding for some considerable time, but I strongly suspect that it is due to the feeding of sulphur. Hen feathers contain considerable sulphur, or material very similar to it. Hence, it seems to me the sulphur satisfies the craving of the appetite, and causes the trouble to cease.

In very bad cases of feather-eating, where the skin has been broken, a very small amount of pine tar applied to the wounds will keep the other hens from picking the wounds and perhaps killing the victim. Having tried these remedies myself, I can vouch for their value.

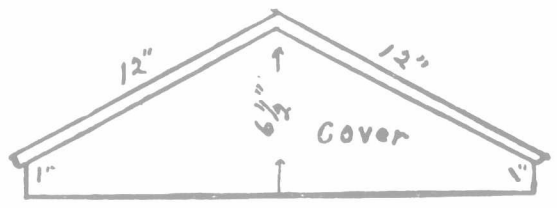
Middlesex Co., Ont. W. E. WILLIAMS.

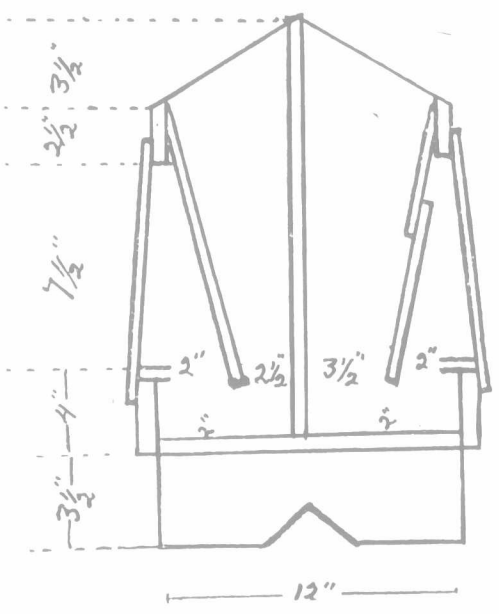
Convenient Hatching Arrangement.

Editor "The Farmer's Advocate":

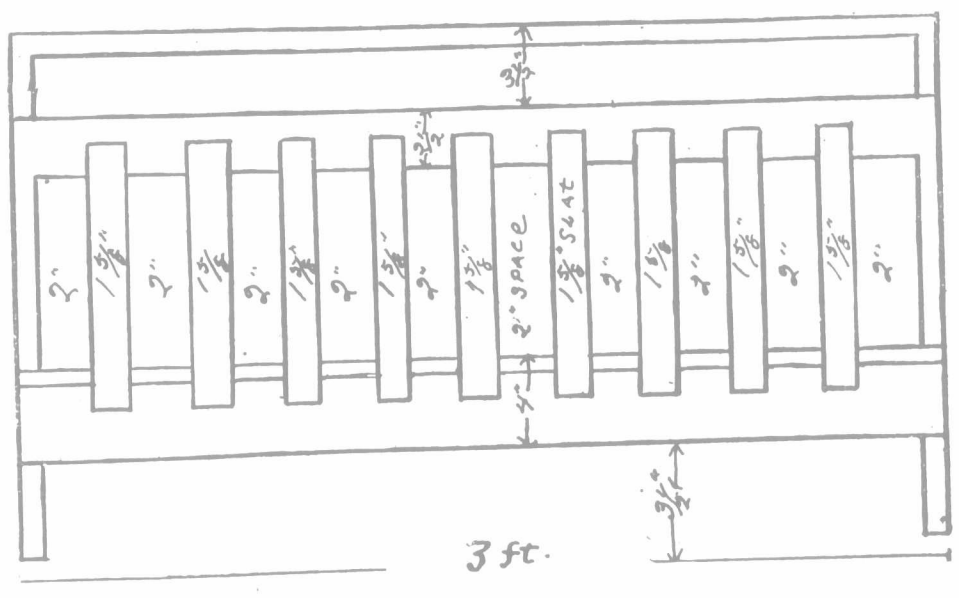
I have had splendid success during the past winter with my flock of Buff Orpingtons. Egg production has been good. I have found rolled oats a very valuable and cheap food. Feed in a hopper, and keep always before the fowl. I have a system of incubation with hens that has given me splendid success, with a minimum of labor. I have constructed a box fourteen feet long, two feet high, and four feet from front to back. It is covered with chicken netting, except over the nest, where a door shuts down. Another door lifts up in front to allow of the admission of food and water. The box is divided by partitions into ten cells. Each partition has a hole cut in it at the floor large enough to admit a five-cent butter crock. These crocks contain feed and water, alternately, and each crock supplies two cells. The floor is covered with sand or gravel. The nests are situated at the rear of the cell. When a hen becomes broody, she is taken from the henhouse and placed in a cell, one or two eggs being placed in the nest. After a day or so, if she sits quietly, the full clutch may be given. This "incubator" may be placed in the loft of the implement house, in the barn, or any quiet place. The hens require very little attention, as they will get off the nest and eat and drink when they require it, and much bother and annoyance is prevented. I have been using this hatching scheme for several years, and have raised as many as 300 chickens in a season. W. E. W.

Middlesex Co., Ont.





End View Outdoor Feed Hopper.



Side View Outdoor Feed Hopper.

GARDEN & ORCHARD.

Irrigation of Strawberries.

Owing to the dry spells which we often have during the strawberry season, our strawberries have, this last two years, suffered greatly from drouth. At present, I have a rock-well in the center of my patch, the rows extending about twenty rods in two directions. Do you think this water would be too cold to apply to the plants? And, if not, what do you consider the most economical way to apply it?

I might say that I have on other occasions made inquiries through your Question and Answer columns, and would like to express my most hearty thanks for the courtesy and promptness of your replies. C. C. J.

Ans.—There is no question, I think, concerning the advisability of irrigating strawberries in dry seasons. We have practiced artificial irrigation in a small way for the past few seasons, with excellent results. We have, of course, a good water supply under pressure, and consequently have made use of the overhead sprinkling system, although the usual method is by means of furrows. It is not likely that the water from your correspondent's well would be too cold, though, as a safeguard, it would be well to apply it only in the forenoon of bright, sunny days. Your correspondent does not state the nature of his soil, and this, of course, is an important point in irrigation. In heavy soils, furrows can be three hundred or four hundred feet long, or even longer. In light soils, two hundred feet is probably the limit in length. Furrows could also be placed closer together in sandy soils, because water tends to go down, rather than spread out. If the well is so situated as to give a flow in each direction, it will be easily possible to conduct the water to any desired part of the plantation by means of a heavy cotton or canvas cut to three or four inches in diameter. This should be dipped in linseed oil to make it waterproof.

Ontario Agr. College. J. W. CROW.

The Onion Maggot Defeated.

The New Jersey Agricultural Experiment Station issued a bulletin four years ago in which the result of numerous experiments against cabbage and onion maggots are given. The injury caused by these pests is at times very serious, sometimes one-third to one-half the crop being destroyed. The experiments were conducted under field conditions, and in different sections.

As a preventive measure against the cabbage maggot, nothing better than disks or cards of tarred paper has yet been tried. These are about $2\frac{1}{2}$ to 3 inches in diameter, having in the center a star-shaped cut, with a slit from it to the edge of disk. The paper used is one-ply tarred felt.

The method of applying the card is to separate the two edges of the slit running to the center, slip the card around the plant when it is set, and see that it fits snugly about the stem and lies flat on the ground, so that the fly cannot get under it. She will then be forced to lay her eggs, if at all, on the card or on the dirt beyond it. If laid beyond the card, the maggots, when they hatch, will be unable to reach the plant; and, if laid on the card, they will almost inevitably dry out before the larvæ develop.

The late Dr. Fletcher, of Ottawa, recommended for onion maggots the application of carbolic-acid emulsion, and this is given favorable notice in the bulletin. It is made as follows: Dissolve one pound of soap in one gallon of boiling water; to this add one pint of crude carbolic acid, and churn thoroughly with a pump until a good creamy emulsion is obtained. This emulsion, properly made, will remain stable for several days. For use, dilute one part of the emulsion with thirty parts of water, and apply thoroughly around the plants. The work, to be effective, must be begun early, and thoroughly done. The first two applications should be but four or five days apart, and later once a week for a month. But the material which is recommended as the most effective of any tested was a mixture of carbolic acid and lime. To make this, slake the lime to a thin cream, use three pints to a gallon of water, and to this add one tablespoonful of crude carbolic acid. This can be applied with a sprinkling can or a spray nozzle, and an application should be made every week. In the experiment, the patch of onions was situated near a previously infested plot. The application was very thorough, so that the material formed a crust on the ground, and the odor of the acid was perceptible for several days. The material seemed to act as a repellant, because even the untreated check rows showed a very slight infestation, while the treated plants suffered scarcely at all. The plants of surrounding neighbors suffered to a considerable extent.

The young plants seem to have no difficulty in growing through the lime coating.

The growth of teaching agriculture in the schools of Ohio has been remarkable. In a leaflet from G. S. Bricker, Assistant in Agricultural Education, Ohio University, it appears that in the school year, 1908-9, 73 High Schools offered agriculture as a special subject, but now two hundred and sixty-seven are offering such a course. While in some cases the teaching is elementary in character, much of it is quite as well done as in any other subject, and there is steady improvement. In the new centralized school, at Boardman, Mahoning Co., the site covers five acres, one acre being for demonstration gardening, with a greenhouse.