be willing to do this in the interests of progress and fair play. The adoption of this plan by cheese factories would remove all temptation to skim the milk and greatly lessen the temptation to water it.

But both practices are pernicious, and must be stopped. In any case, Mr. Farrington deserves and will receive the support of every honest dairyman.

REMEDY LIES WITH THE PRODUCER.

Editor "The Farmer's Advocate":

Your favor of the 10th, regarding shipping of green cheese, to hand, and contents noted. You are certainly entering into a subject that needs the consideration of everyone connected with the dairy industry, but it is a very difficult problem to solve. In my own mind, it lies entirely in the producers' hands to stop the sale of immature and uncured product. In reply to your first query, would say, according to my own experience of over twenty-five years, I do not think any cheese should be boxed younger than six days old. As to the best way of stopping the shipment of green cheese, I would suggest that the factorymen hold their cheese back and not offer them as green as they have been doing the past ten years. I should be very pleased if there was any way of getting all the parties interested to stop the pernicious practice of shipping so green.

Middlesex Co., Ont. JNO. R. ISAAC.

CHEESE SHOULD BE KEPT A WEEK ON THE SHELVES.

I think cheese should remain on shelves at least seven days before shipment. The best way to stop the shipment of green cheese would be for buyers to refuse to handle green cheese. I do not think the quality is hurt by early shipping, but there certainly must be a great loss in weight.

S. E. FACEY.

Middlesex Co., Ont.

POULTRY.

AS TO CRIPPLED CHICKENS.

Editor "The Farmer's Advocate":

In the June 6th issue of your paper I noticed a query as to the cause of so many crippled chicks in incubator hatches. It is a question which has also puzzled me; that is, taking for granted that the correspondent meant chicks which were crippled when taken out of the machine.

The answer to the question in your paper does not satisfy me, for I have observed the crippled chicks closely, and I have found that the reason they cannot stand is that either one, or, more often, both legs are either broken or out of joint, either at the knee joint or at the body. What first called my attention to this was the fact that the feet of the crippled chick were always swollen, getting more so, and getting purplish in color as he lived longer. By feeling the little limbs carefully, I found that in nearly every case either one leg or the other, or both, were broken at the knee joint, very often the end of the tiny bone sticking out, or at least plainly felt through the skin at the outside of the leg. Of one thing I am certain, and that is that it is not just the weakest chicks that are affected this way. On the contrary, it seemed the finest ones—big, lusty fellows, able to live the best part of a week, despite their condition.

My first impression was that they broke their legs in their fall from the tray to the nursery drawer (my machine is a 1906 Cyphers), but at the last hatch I placed a small roll of wadding beneath the opening, so as to break the fall, but the percentage of cripples was as great as ever. Perhaps a possible explanation is that they injure their legs walking over the eggs and broken eggshells just after hatching.

MRS. W. E. HOPKINS.

Carleton Co., Ont.

CANADIAN CAPON MARKET NOT READY.

Editor "The Farmer's Advocate":

I would not care to advise farmers to go into the raising of capons, because I do not believe the Canadian market is ready for it. From what information I can get from the Montreal buyers, there is already a sufficient supply, and the prices do not rule any higher than for a good large roaster. On the other side, the farmer will not raise birds that he will have to keep from eight to ten months before he can market, as is the case with capons. This has been my opinion for some time, and the more I see of the trade, the more I am convinced that the time has not yet arrived to advise farmers into this line of work.

F. C. ELFORD.

Macdonald College, Ste Anne de Bellevue, Que.

RAISING CHICKENS WITHOUT HEN OR BROODER.

The days are at last becoming warm, but the nights are still very cool. To those who are afraid of their chickens which are not in brooders getting chilled, I would advise this plan: Take a gallon earthenware jug, heat it in the oven and fill with boiling water, then roll it tightly in several thicknesses of old cloth. Place it in the coop with your chickens. They will all nestle to it as to a mother hen, and it will give a comfortable warmth for 24 hours.

Last year I raised 400 healthy chickens from three incubator hatches, with no other contrivance than an old shed, where I kept a small cook stove going all day, with a few boards around the base, where the chicks nestled, and half a dozen jugs, as above described, to keep them warm at night. The floor of the shed was covered thickly with cut straw, and they scratched for their dry feed in that all day long. As soon as the warm, sunny days came, I made a wire-netted yard at the south side of the shed, and kept the door open in the day time. I had no brooder at all. For the first couple of days after they hatched, I kept them in boxes, with a warm jug, and did not feed; after that I let them out on the floor. I must say this for my method, that out of the three hatches I did not lose one through disease or overcrowding or cold, and the chicks had that healthy, vigorous appearance that is not usually seen in brooder-raised chickens.

MRS. W. E. HOPKINS.

Carleton Co., Ont.

WHY CHICKENS DIE IN THE SHELL.

An Alberta poultry-keeper, who had trouble with chicks dying in the shell, wrote A. W. Foley, the Poultry Superintendent at Edmonton, formerly in charge of the Dominion Poultry Station at Bowmanville, Ont. In reply, Mr. Foley went into the subject rather fully, attributing the trouble to the breeding stock. While we should not care to go as far as Mr. Foley, being inclined to think there is something to learn yet about artificial incubation, still we consider there is a good deal worth pondering in what he says, and publish this letter for the consideration of our readers:

"The subject you mention is not by any means a new one. I have met it in all the older Provinces, and have come directly in contact with it in almost every part of Alberta. It has been my privilege to conduct a number of interesting experiments in trying to locate the trouble, and, from my observation, I am convinced that the whole difficulty lies in the breeding stock. I have experimented largely with this trouble by the use of trap nests, which have given me a great deal of information relative to the individual hen and her eggs, and enabled me to arrive at conclusions from which, I believe, the trouble usually can be traced. The difficulty lies in the fact that the breeding stock is lacking in constitution and vitality necessary to produce the germ of vitality sufficient to incubate a strong, healthy chick.

"I might instance a number of things that could lead to this debility. In the first place, breeding from immature pullets, pullets that have not fully developed under natural conditions. By this I mean the foods, such as a liberal quantity of grain, meat, grit, succulent food, etc., that are necessary to build up the constitution of a bird. This may be found while on free range, and disappear at the approach of cold weather in the fall, before the bird has completed its normal growth.

"After they have gone into their winter quarters, they do not reach that maturity, in the strict sense of the word, unless a sufficient quantity of the necessary rations are supplied. While maturity may be reached sufficient to produce eggs, yet, at the same time, the organs that supply food to the ovaries to produce eggs are not in a healthy, natural state, with the result that the same difficulty is transmitted to the germs in the egg. On the other hand, the difficulty may have originated during what we call the danger period of the first three weeks of the chick's life. It may have received a chill in the rearing, with either the hen or the brooder. The internal organs at this stage are in a very delicate state, and, while the effect may not be noticeable, trouble has been caused just the same.

"Again, feeding the chicks too soon after hatching, in my opinion, causes more disaster and mortality in chicks than any other treatment. You will readily understand that the chick, when hatched, has considerable unabsorbed yolk in its body. This is sufficient to keep the chick a considerable time without suffering any ill effects. By feeding too soon, the law of nature is counteracted, which causes a disarrangement of the organic conditions that may never be noticed until their eggs are due to hatch. This same disarrangement may also arise by feeding the chicks unwholesome foods, or by the lack of such foods as are necessary in building up the tissues, organs, flesh, etc., to produce a normal growth. These requirements may have been adhered to, and the chicks [illegible] matured under the most satisfactory conditions, when some slight ailment may have been contracted that would produce the same result. Change of food has been known to cause the same, or, again, by the lack of a supply of certain foods that are necessary in producing a uniform egg in the strictness of the word.

"I might say that these conclusions have been arrived at largely by the use of trap nests, which fact has given me ample chance to study the eggs from different hens. I have found hens whose eggs were always fertile and always hatch good strong, healthy chickens. Other hens' eggs were sometimes fertile, sometimes not, sometimes hatched good strong chicks, sometimes the chick died in the early stage of incubation. Again, I have noted other hens whose chickens always died in the shell, and, further, I have found hens which never, to my knowledge, laid a fertile egg, and it was the use of the trap nests that led me to take such an interest in this work, and upon which I based my conclusions.

"I might state that there are a great many in the Province who are taking a special interest in poultry work, and are desirous of forming an Experimental Poultry Union for the Province. I am working out a special course for a school of this kind, and would be pleased to receive opinions with reference to same, and any suggestion you may offer."

GARDEN & ORCHARD.

HORTICULTURAL PROGRESS.

Prepared for "The Farmer's Advocate" by W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa.

SPRAYING FOR CODLING MOTH.

This is the subject of Bulletin 114 of the Illinois Agricultural Experiment Station, Urbana, Ill., and is written by John W. Lloyd, Chief Assistant in Horticulture. In this bulletin are given the results of four years' experiments in spraying to control the codling moth, an insect which causes great loss to Canadian fruit-growers every year. One experiment was planned to determine the percentage of the first brood of the codling moth which entered the apple by the calyx end, in order to learn whether it was important or not to spray before the calyx had closed. Of 1,065 apples which had been injured by the codling moth, 77.74 per cent. had been entered at the calyx end. Another lot of 687 windfalls showed 79.91 per cent. injured at the calyx. This demonstrated the importance of getting Paris green, or some other poison, into the calyx cavity before the calyx closed, as has been recommended for some years by various experimenters. Another experiment was tried in order to learn whether the calyx of the flowers of different varieties closed at about the same number of days after the petals fell, and if not, what differences in time there were among varieties. The results showed that there was a marked difference in time, the following figures indicating the number of days from the time when nearly all the petals had fallen until the first calyxes were fully closed: Duchess, 7 days, Minkler 7, Whitney 7, Winesap 9, Grimes 10, Ben Davis 11, Fameuse 11, Willow Twig 11. It is well known that the central flower of a cluster opens first. Observations showed that the first bloom in a cluster may open from a few hours to three or four days ahead of any of the other flowers. The calyxes of these flowers close first. Observation also showed that the chances of fruit setting from the central flower were greater than from any other flowers of the cluster. The practical point which was determined is to spray a variety before the calyxes of the central flower have closed. A large percentage of blossoms never set fruit, and as the calyxes of such blossoms appear never to close, they may prove deceptive. From the observations made in this experiment, it is recommended to spray an orchard within seven days after most of the bloom has fallen, in order to cover the point of difference in varieties and in the individual flowers of the clusters.

Another experiment was planned to determine whether a heavy or light spray was desirable. It was found that the best results were obtained when the poison was applied in a fine spray, with high pressure, in sufficient quantity to cause the fine drops to unite and begin to drip from the tree. With a low pressure and a small amount of material, the results were not satisfactory. The method employed in this first application should be one which will result in the lodging of considerable spraying material within the calyx cavities of the highest possible percentage of the young apples. A comparatively large amount of material, applied under high pressure through fine nozzles, is most likely to secure the desired end, though, if the amount is excessive, russeting of the fruit and injury to the foliage may follow. Two applications will give better results than one.

Experiments were also tried to control the second brood of the codling moth by spraying. This is the brood which injures the fruit when it