

the opportunity to see that they are not either too hot or too cold. It is not necessary to ventilate the eggs until the eighth or ninth day after setting. After this period more ventilation is necessary, and successful operators open the ventilators gradually until they are wide open at hatching time.

It is necessary to watch the lamp carefully. Clean it thoroughly when the machine is started, taking off all grease, accumulated oil and material which is likely to cause foul fumes. It is generally advisable to use a new wick each time, or at least one about which there is no danger of trouble. In operating a machine use the best quality kerosene, and in starting the lamp be careful to have the wick turned low in the beginning and watch it carefully for some time after lighting, in fact during the first day. It is well if possible to try the lamp a short time before the eggs are placed in the tray, then one knows that everything is in good order before the machine is started. The lamp requires constant attention, and should be filled each morning and have the wick carefully trimmed at the same time. It is well in doing this to be regular, as it is in turning the eggs and the general care of the machine. Keep the lamp clean throughout the process of incubation, and be careful always to keep the flame turned the same height after each trimming and relighting.

There is nothing difficult about running an incubator. There are a few little things which must be attended to, and these few hints may be of some use to those now interested in hatching chickens for 1915. The disinfecting of the machine, as outlined, before the eggs go in is believed to have some effect in preventing white diarrhoea, which is so prevalent amongst incubator-hatched chickens. It is a safe precaution at any rate, and whether it does what it is claimed to do or not it can do no harm, and the Poultry Department at the Ontario Agricultural College has had good success with the method, which should be some proof of its value. We would like to see a large number of chickens hatched on the farms of this country this year, and we would like to see them hatched earlier than usual, because their is no mistaking the fact that early pullets mean more eggs next winter when eggs will be high in price. Try and get as many out in March and April as possible.

Editor "The Farmer's Advocate":

I am sending you a statement of what it cost us in 1914 to raise our chickens together with our methods of rearing. We hatch with an incubator, starting to hatch about the 20th of March. If hatched earlier, the pullets might start to lay in August and would very likely moult before winter, and would not lay again till spring when eggs are low in price. In 1914 we set our incubator three times, viz.: on March 23 with 217 eggs which hatched 111 chickens; on April 15 with 224 eggs which hatched 137 chickens; on May 9 with 209 eggs which hatched 147 chickens, making a total of 650 eggs which hatched 395 chickens.

After our chickens are hatched we take them from the incubator and give them to broody hens, about 25 to 35 chickens to a hen. To get the hen to take them we give her two or three eggs from the incubator on the eighteenth or nineteenth day. If the weather is warm we place the hen and chickens in the orchard in coops, but if it is cold or damp we keep them in pens in the stable till the ground is warm enough to get them out. They seem to grow better in the orchard than shut in. We feed nothing till the chickens are 36 hours old when we start to feed bread made from low-grade flour, soaked in sweet milk, which we feed five times a day. This forms practically all their feed for the first six or eight weeks with what they can pick while ranging in the orchard or an adjoining alfalfa field. We consider fresh water a necessity and keep six or seven small fountains with it throughout the orchard.

At six to eight weeks of age we separate the cockerels from the pullets putting the pullets in open front coops 6 feet long, 2 feet 10 inches wide and 3 feet high in front and 18 inches at back in

In purchasing an incubator it is always well to get a good machine. There are several on the market, and it generally pays in the long run to buy a machine that has been tested and proven its worth, even though it costs a little more money than some cheaply-constructed machine of questionable value. Follow the directions which go along with the machine carefully; see that the thermometer that goes with the machine is reliable; it is well to have thermometers tested each season. Your local druggist will test it for you and then you are sure you are correct. At the Ontario Agricultural College a 10 per cent. solution of a tarry compound, such as creoline or zenoleum is used to thoroughly wash the entire interior of each incubator before the eggs are placed therein. Experiments there have shown that best results are obtained when moisture is used. However, they agree that good results are often obtained where no moisture is used. A pan is used beneath the egg tray, nearly the full size of the machine and this is kept covered with water, or wet sand not more than an inch in depth.

Experienced poultrymen tell us that the most important week of incubation is the first week, and that the hatch is made or lost during that time. It is well to keep the temperature up to 103 degrees during this period, with the thermometer lying on the eggs, and always maintain as even a temperature as possible.

Something might be said here regarding the kind of eggs to set. This will apply to setting under hens or in a machine. Never set dirty eggs, and never set eggs which have been washed. It must always be remembered when setting eggs that the shells are porous in nature and these pores must not be clogged by dirt or grease, and clean eggs are desired because germs carried on dirty eggs might possibly infect a large number of the eggs set. In selecting eggs for hatching always make it a point to choose those of medium size and true to the color and shape of eggs of the breed. In turning eggs in an incubator always be careful to have hands clean and dry at the time, any dirt or substance of an oily nature is detrimental.

Some importance must also be attached to the room in which the incubator is placed; this should be a clean room and with good ventilation. Drafts are disastrous. It is well to select a room that varies little in temperature, because the temperature of the room has an effect upon the temperature in the egg chamber. It is easier to keep an even temperature in the incubator when the room temperature does not vary than where the room is cold at one time and very hot at another. Some have good success in a dry cellar, but where cellars are used one must be careful to allow no decaying vegetable matter around and to keep the cellars clean and dry, because incubators do not do good work where dampness is so great that moulds grow and thrive. The air in the incubator room should be pure and free from coal oil fumes.

As previously stated the best temperature is 103 degrees F. with the thermometer lying on the eggs. The bulb of the thermometer should touch the top of the eggs, not the side or be worked down between them to the bottom. Simply place the thermometer on the top of the eggs with the bulb touching one of them toward the centre of the incubator and a little back from the front. This heat is maintained throughout the entire hatch. Another point which should have been mentioned in connection with selecting eggs is that nothing but fresh eggs should go in to the machine, and previous to being placed therein they should not be chilled or over-heated. The best temperature at which to hold eggs for hatching is between 55 and 75 degrees, preferably around the lower figure, and they should not be held more than two or three days to give the best success. In running a machine it is best, as a general thing, to start it in the morning; this gives an opportunity to watch it throughout the day and see that it is working properly before retiring for the night. By night the eggs will be up to the required temperature and are hap-

The poultry-keeper operating on a large scale, or a person desiring to hatch chickens early in the season and not wishing to depend on hens must rely on the incubator. Whether or not it is a good move on the part of the farmer poultry-keeper to buy an incubator depends largely upon conditions under which he is operating. If he desires to get chickens in larger numbers before the middle of April or the first of May it is almost a necessity that he purchase an incubator, because it will be found impossible to obtain enough broody hens to bring out any considerable number of chickens so early in the season, and we are firmly convinced that the money is in the early chickens, therefore, for the man who wants early chickens in large numbers there seems nothing else to be done than purchase an incubator, in fact, experts tell us that where more than 150 chickens are to be raised in an entire season this can very often be done much more cheaply by artificial than by natural methods. The incubator also is an absolute necessity when a man is raising and dealing in poultry of the non-setting breeds exclusively. These breeds can never be depended upon to make successful mothers. Of course, where only a few chickens are raised, say 25 or 30 a year, and these are not brought out until May or June, the poultry-keeper need not find an incubator profitable. So far as comparing the results from incubator hatching and the natural method is concerned we are not prepared to say very much. It is generally conceded that where chickens are hatched under hens and left with the hens during the brooding period, that they are healthier and a little more rugged than those hatched by the artificial method, especially where carelessness has crept in in the operation of the incubator. However, where an incubator is operated properly and the chickens after hatching cared for as they should be, there should be very little difference in the percentage of hatch between the artificial and the natural methods. About one live chicken for every two eggs set is a good average.

Much of the blame placed on incubators for not hatching as they should is unwarranted. A man is often heard to remark that his incubator only hatched 25 per cent of the eggs put in it, whereas by hen-hatching he was able to get an 80 or 90 per cent hatch. Very often those who make such statements do not attempt to hatch eggs in their incubators until late February or early March, and