EFFICIENT FARMING

Handling the Incubator.

Regardless of how long he may be in the business the poultryman can never forget the pleasure and satisfaction of watching his first hatch of downy chicks come from an incubator. And incubators are being made so efficient that it is not difficult to obtain good results. Farmers who do not own incubators will find more satisfaction in raising poultry by artificial hatching than with a large number of old hens. This is a fact, because brooders have been improved to care for the chicks.

The writer believes that brooders have been improved more than incubators. In past years many failures with artificial incubation was due to poor brooders. Poultrymen could hatch chicks which they could not raise. But now that good brooding equipment is available the incubators are having little trouble in proving their worth.

It pays to follow the directions of the maker of the machine. For the first hatch, mark on a calendar or make a chart showing the work that should be done each day. The routine of maraging a machine will be learned during the process of one hatch.

The eggs for the incubator should be gathered often and stored where the temperature is between fifty and sixty dgrees. When eggs reach sixty-eight to seventy degrees a slow growth will start. Then the temperature may be reduced, causing the germ to die. Eggs that are chilled will also fail to hatch. Eggs should not be held longer than two weeks and the fresher they are, the better the chances of producing a large per cent. of livable chicks.

The best location for an incubator is in a cellar but a room where the temperature is around fifty to sixty degrees will be all right. The temperature inside the machine is constantly influenced by the outside air and if that is frequently changing in temperature it will be difficult to regulate the incubator. There is less vibration on a cellar floor than in an upstairs room. When the machine is upstairs much care is necessary to keep the temperature as uniform as possible and avoid heavy walking and banging of doors. Care should be taken to level the incubator before starting.

Eggs must be taken out and turned every twelve hours from the morning of the third day to the night of the eighteenth day. The time of cooling can gradually increase as more animal heat is produced in the eggs. Return them to the machine as soon as touching an egg to the eye proves it is cool. It is not necessary to turn each egg separately. Remove a few from the middle of the tray and roll the others toward the centre. Then replace the eggs in the ends. This procedure causes the eggs to be constantly changing their place in the machine.

When the lamp wick is first trimmed cut it straight across and slightly round the corners. After that do not trim the wick with shears but rub off the burned portion each day with a match. A pointed flame is not desirable, so have one that burns at an even height from one end of the wick to the other. The best grade of kerosene obtainable will be the best investment. This gives the most heat and the least soot and odor. A reserve supply should always be at hand to avoid the risk of running out of fuel.

When the machine is closed the night of the eighteenth day it must not be opened until the hatch is completed. When all hatching appears finished and the chicks are dry the machine can be opened. Take out the chicks and remove all broken shells, eggs that failed to hatch, and crippled chicks. Return the good chicks to the machine and hang a piece of paper in front of the glass door, if there is one, so that the chicks will not peck at each other but rest comfortably while spread out over the egg tray or the nursery. They do not need any feed until forty-eight to sixty hours old. If fed before that time bowel trouble is more apt to result. If it is hard to keep down the temperature in the machine, open the door slightly. Do not let the chicks overheat. We like to let the temperature drop to about ninety degrees soon after the hatching is completed and while the chicks are waiting to be removed to a brooder.

After each hatch, incubators should be thoroughly scrubbed with one of the commercial disinfectants or with hot soda water. After a careful washing it pays to dry the trays in the sunshine. The old wick can be removed and the burner boiled in soda water to remove gummy accumulations. A clean burner is easy to regulate. Some risk is avoided by placing a new wick in the burner for each hatch. Sometimes hatches have been injured when short wicks failed to reach the oil, causing the lamps to go out at night.

How to Introduce a Rotation of Crops.

First consider the approximate acreage of grain, hay, pasture and hoed crops which will be required; next consider the quality of soil which is on the farm. Then decide what rotation would be most suitable.

The following rotations have given good results:

A Four-Year Rotation: Hoed crop, grain, clover hay, timothy hay. This rotation has proved to be very satisfactory although its acreage of grain is rather too limited for most farms.

A Five-Year Rotation: Hoed crop, grain, clover hay, timothy hay, grain. This rotation gives a very good proportion of the various crops. It is very satisfactory.

A Three-Year Rotation: Hoed crop, grain, clover hay. This rotation has a very large area of hoed crop and provides no pasture land. It is, therefore, unsuited to most farms. However, if the fertility of the soil is very poor, if additional pasture land is available, and if considerable stock are kept which will consume the hoed crops, the rotation is very satisfactory.

There are, of course, many other rotations, but the above mentioned have perhaps the most general application. It is quite probable that portions of the farm, on account of being either too wet or too light and sandy, may have to be farmed under a separate cropping system. Under such conditions if this area is not too large it is undoubtedly more profitable to leave it undivided by fences and to reckon the entire area as one year in the new rotation. With such a system a field of poor soil may be increased in fertility by a short rotation of crops and by larger applications of manure. A field of low wet land may be left longer in hay.

One consideration should not be overlooked. The fields should be made large in order to reduce the cost of producing crops and to decrease the depreciation and repair of fences. The rotation should be planned so that the horses would be kept busy as much as possible throughout the year, because it costs money to have horses standing idle. While almost all farmers follow some practice of changing the crops on their fields from year to year, very few have adopted a definite rotation of crops. The adoption of a suitable rotation will reduce the cost of production and will make more profit.

Weeding.

Some lazy little fishes found
A cove, all clean and cool,
And then one day in truant way
They ran off from their school,

And stayed away and played away
In inlets, creeks and rills,
Until the strong tide took them home
Against their naughty wills.

They suffered heavy punishment
(Though 'twas deserved, indeed):
Their whole next holiday they spent
In pulling up seaweed!

Fowls do not need to be continually "doped" with stimulating food or drugs. Pure food, exercise and good care are the main requirements.

The nests for laying hens should be overhauled and renewed two or three times during the season, the boxes being painted with coal oil to kill lice, while fresh nesting material should be abundantly supplied. The nests for sitting hens should be renewed every time a fresh batch of eggs is set.

The Sunday School Lesson

MARCH 20.

Jesus on the Cross. St. Matthew 27: 33-50. Golden Text—Romans 5: 8.

Time and Place: Friday, April 7, A.D. 29. The Mount of Calvary outside the walls of Jerusalem.

Connecting Links: After the Last Supper follow the scenes in the garden of Gethsemane, on the slope of the Mount of Olives, to which Jesus went with His disciples after the supper—the long-drawn-out agony and conflict of soul, which He bore alone while His weary companions slept, and the sudden and harsh interruption of betrayal and arrest.

Jesus was led away first to the house of Annas, a former high priest and a man of great influence, father-in-law of Caiaphas, the present high priest. There, in the gray light of early morning, an informal hearing took place, the story of which is told in John 18: 19-24. Next, in the house of Caiaphas, Jesus appeared before the council for formal trial, and was condemned, under false witness, for treasonable designs against the temple. The council, however, had no authority to condemn Him to death, and so after mocking and abuse He was sent to Pilate, the Roman governor. Pilate questioned Jesus but found no fault in Him. Then, to avoid responsibility, He sent Him to Herod Antipas, the sub-king of Galilee, who happened to be in Jerusalem. Herod mockingly questioned Him and sent Him back to Pilate, by whom He was at last reluctantly condemned, in view of the persistent and violent clamor of the Jewish mob. Scattered, disorganized, and totally unprepared, the disciples and friends of Jesus could do nothing to help Him.

The Crucifixion.

V. 33. **A place called Golgotha.** The name means "skull," and the Latin word corresponding to it is Calvary. Weary after a sleepless night, worn by the agony through which He had passed in Gethsemane, and by repeated hearings before the different courts, buffeted, and bruised, and lacerated with the thorns which they had bound upon His head in mock imitation of a crown, Jesus was led forth from the city bearing upon His shoulders the cross upon which He was to be crucified (John 19: 17). It seems that He must have proven unequal to the burden, for on the way they laid hold upon a stranger, Simon of Cyrene, whose sons were afterward among the followers of Jesus, and made him bear the cross. By the way women who had known His good works, mourned and wept for Him, and somewhere in the crowds that gathered, the disciples, who had been with Him in the night, followed with astonishment and fear. Two criminals condemned to the same death kept Him company.

The site of Golgotha, or Calvary, is unknown. There is a tradition which comes down from the time of the Emperor Constantine, which marks the site now included in the Church of the Holy Sepulchre. The only other probable place is outside Damascus gate, on the northern side of the city, where there are some low rocky hills and tombs.

Vinegar to drink mingled with gall. The vinegar was a sour wine. Mark says, "wine mingled with myrrh," Gall was the bitter and poisonous extract of some plant, possibly the poppy, but this is uncertain. It seems to have had a stupefying effect and to have rendered one partially or wholly insensible to pain. But Jesus preferred to retain His full consciousness and would not drink. It is impossible for us to imagine the intensity and agony of the pain which He must have endured.

They cast lots. This was, no doubt, a common custom. The Old Testament passage referred to is in Psalm 22, which was originally written of another sufferer, but the language of which in part seems to describe that which happened at Calvary.

Jesus the King of the Jews. Pilate had these words written in large letters, in Hebrew, Latin and Greek, and set up over the cross where all could read. No doubt He intended it as an insult to those Jewish leaders who had forced him to condemn to death an innocent man, for he thus made it appear that it was actually their king who was made to suffer this shameful death. He did not know that the cross was the way by which his victim would rise to a throne higher than that of Caesar, and to an Empire wider than any of which Rome ever dreamed.

V. 39. **They that passed by reviled Him.** Peter, whose own heart was sore with the memory of his passionate words of denial in the early morning, witnessed this scene, and wrote long afterwards urging men who believed to follow the example of Jesus, for "He committed no sin; no guile was ever found upon His lips. He was reviled and made no retort; He suffered and never threatened; but left everything to Him who judges justly. He bore our sins in His own body on the gibbet, that we might break with sin and live for righteousness."

The revilers quoted words which Jesus had used long before but with an entirely different meaning from that which they put upon them. Compare John 2: 19-22, Matt. 26: 61, and Acts 6: 14.

Save Thyself. They taunted Him saying, He saved others; Himself He cannot save. Unconsciously they were praising Him while they meant to mock Him. They were uttering that universal law of unselfish service, that those who would save others cannot save themselves. Wholly and unreservedly they give, as Christ gave, even to the giving of life. He trusted in God. Yet, they thought, God does not deliver Him. How many a follower of Christ has trusted as He did and has not been delivered! Their faith, like that of their Master, has been tried to the uttermost, and like Him they have died. It seemed as if God had forsaken them. But had He forsaken or forgotten? Assuredly not. The lesson of the Cross is clear. Whether in life or death God never forsakes His own. Even Jesus, in His hour of agony, cried out, in the words of Psalm 22, Why hast Thou forsaken me? But God raised Him from the dead.

Application.

Into the mystery of our Lord's heartrending cry it is impossible to enter, yet there is comfort in the fact that these words were found on His lips. How often have they been the expression of others' agony. A little babe is taken from a home which had joyfully settled itself to be a nest. A father is called from the head of his household, a mother passes beyond the reach of her child's tearful search. We are overcome with the sense of loss—loss for which we can see no reason. Like our Lord we cry, "My God, why?" There is no answer yet but it surely strengthens us to remember that Jesus felt as we do; that in His case, though calamities more crushing than ours came upon Him, there was no mistake; that our suffering, like His, has somehow a place in the wise order of Providence; that some day our severest agonies will be remembered only as we to-day remember the griefs of our childhood. The railing priests saw in his unrelieved agony proof that God had forsaken Him, and would not "have Him." The opposite was true. "The Father's delight in His Son reached its highest point when He became obedient unto death." Surely there is a lesson here for us.

Running Water in Every Farm Home

In the past, water-systems had to be designed by our farmers. They had to buy the engine from one company, the pump from another, a tower had to be built and a tank placed upon it. This procedure was expensive, confusing, and often entailed a lot of errors. Not much wonder that many farmers were content to use the old hand-pump, and carry water to the house to supply the many, many needs. The errors in the design and installation of the water-system were many. Too often the engine was several times the necessary size, the pump was often placed incorrectly, the pipes were too small and the tower would not withstand the storms.

In recent years unit water-systems have been developed and placed on the market; they are exact in power equipment, pump and tank capacity, and may be installed without the least trouble if the instructions are followed. Each piece is the right shape and size and does its part efficiently. The manufacturers of the standard water-system equipment maintain engineering departments to take care of the various farm needs, and they also are conducting service departments, whose duty it is to supply the agents with necessary repair parts to keep plants in proper operation. Such service develops confidence in the minds of the consumer and reduces advertising to a basis of education.

There is no piece of farm equipment which has the constant usage that the water-system has. The demands are daily and hourly. Water is necessary in the preparation and serving of each meal, washing the dishes, cleaning the house, bathing, sprinkling the lawn and garden, flushing the stables, washing the automobile, and is an asset for fire protection. In fact, the water-system has no idle periods when it may be repaired, such as the tractor, spraying machinery, etc., have. Thus the manufacturers of farm water-systems realize that an efficient service department means future business by creating a satisfied consumer.

Several Systems In Use.

There are several ways of securing water under pressure in the home and about the farmstead, whether by elevating the water or putting it under air-pressure. The first system might be called the gravity system. The water is either pumped to an elevated position or is elevated by nature, as in the case of a spring on the mountainside. Many farmers are blessed with abundant supplies of water which can be piped directly to the farm. This is ideal, for it is cheap in operation and almost never gets out of good condition.

The elevated tank has many disadvantages. It is affected by extremes of temperature, often leaks, may be wrecked by storms and is unsightly. This system is comparatively simple, except for freezing.

The pneumatic system was one of the first deviations from the elevated-tank method and has been highly successful. It consists of a tank which contains a gauge and necessary attachments for the intake and outlet of the water. The tank contains air at atmospheric pressure. The water is pumped either by electric motor or gas-engine (occasionally by hand) into the tank. When the tank is about two-thirds full of water the pressure is about thirty pounds per square inch. This is equal to the gravity pressure of water in a tank about seventy feet high. This system works very much like a steam boiler. The air under compression forces the water to the various buildings where water is needed.

There are two pneumatic systems, one in which the tank is large enough to store sufficient water for the farm for several days, and another in which the tank holds only a few gallons and is operated by an electric motor. In the latter case, when a faucet is opened, the water begins to flow and reduces the pressure in the tank. This works an automatic diaphragm which throws on the current, the pump begins to operate and, in this manner, delivers fresh water from the well or cistern.

This system consists of a tank into which air is pumped. There are two sets of pipes, one to conduct the air from the tank to the well, spring or cistern, and the other line of pipe to deliver the water to the house or barn. This is sometimes known as the fresh water-system. With this type of water equipment a pneumatic pump is necessary. The manufacturers of the systems furnish the pumps.

Eleven Cents Per Day.

If the water-system should cost $450, the interest would be $27. As the equipment is used 365 days in the year, the daily cost would be about eight cents. To this must be added about three cents a day for gas and oil, which brings the daily cost to the low figure of eleven cents a day. Of course, conditions and size of farm will make this cost vary. No one would object to eleven cents a day for all the water.

An experiment was conducted once in a western college to determine the capacity of a man at work. A pump was rigged up and it was found that the largest and huskiest football player was able to develop only one-tenth horsepower for a short time. This means that a one-tenth horsepower motor will do more than a man can do. This man would be worth $3 a day. The motor would cost about $20, or a daily cost almost too small to calculate—about one-third of a cent a day.

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Poultry

Get rid of the egg-eaters and the feather-pullers if you have some in your flock, or they will soon teach the habit to others.

Crowded chickens won't pay any better than anything else that is overcrowded. It pays to have quarters that are perfectly commodious and comfortable.

The droppings are one of the important adjuncts of the poultry business on the farm, if carefully mixed with dry earth and kept as fertilizer. No manure is richer than hen droppings.

It never pays to expect two-hundred-egg pullets from one-hundred-egg hens. Remember that "like begets like."

Improve the quality of your flocks by purchasing some good fowls or eggs from a heavy-laying strain of purebreds. It will be money well spent.

The farmer who says chickens don't pay is the one who neglects them or does not keep an account, and hence does not know how much revenue the fowls really do bring in.

Keep the drinking vessels of both the chicks and the old fowls scrupulously clean. Wash them out every evening and scald then out at least once a week. Replenish the water supply several times a day. Don't pour fresh water into the vessels, but throw out all the stale water and then put in the fresh water.

The way to break up a hen that wants to sit is to begin the first time she is found to be sitting. Put her in a cage with a slatted bottom, which is a few inches off the ground. Usually a day or two in such a cage cools off the sitting fever.