When the chicks are moved out on the range, both pullets and cockerels are together. The cockerels should be separated from the pullets by the time they are three months old, the cockerels being yarded by themselves or moved off to fattening pens and fattened for market. The twenty-five to thirty-five pullets in each colony coop flock are left to grow to laying maturity, or close to laying, with the colony coop as their home, and finding their food in the outdoor food hopper.

It is quite common to find the first pullet's egg in one of these colony coops along in late August or during September, provided the chicks were hatched in March, April or May—depending on the breed or variety—and kept growing steadily. For example, it is comparatively easy to grow Plymouth Rock, Wyandotte, Rhode Island Red or Orpington pullets to laying maturity in the manner here described in five and one-half months to six months. This can be done with Leghorns in four and one-half months to five months—and with safety.

Remember that it does not pay to force pullets to early laying. By doing so, you will stunt their growth. Plymouth Rocks, for example, can be brought to lay at four and one-half to five months old, and Leghorns at three and one-half to four months old, but it is unwise to do this. In order for these fowls to do their best as "egg machines," they should develop large frames before they begin the trying process of producing "an egg a day." By the time the pullets begin to lay—dropping now and then an occasional egg—they should be moved into the laying houses.

The poultry house should be emptied of the old birds in September, the house thoroughly cleaned out and disinfected, the walls and ceiling whitewashed and the new generation of layers-to-be moved in about October 1st. This period varies in different sections, but along about October 1st is the usual time. There should be two dry-mash hoppers to each thirty or forty adult birds, these hoppers to be kept supplied with a reliable dry-mash mixture, and, as the hoppers become empty, they are re-filled. There should be dry mash in the hoppers all the time. Twice a day, morning and mid-afternoon, a scratching food of whole and cracked grain should be thrown into deep, dry litter on the pen floor, and the birds now get healthful exercise scratching and searching for the grain. The amount of exercise induced is at the discretion of the attendant. The deeper and more open the scratching litter, so that the grain sinks into it out of sight at once, the more the birds will have to scratch and dig for it.—[Cyphers Company Service Bulletin No. 2.

Late Chicks, Yarding Fowl, Etc.

Editor "The Farmer's Advocate":

There has always been a great difference of opinion as to whether late chickens are worth the trouble of rearing or not, and many experts differ on the subject. Of course, much depends on the location of the poultry-keeper, and also on the particular kind of demand associated with the district in which he lives and the market to which he sends his stock. If a man goes in for egg production, he will have to consider the time it takes each breed to mature, and also whether they are sitters and non-sitters. Light breeds should never be hatched earlier than April or May, else they will moult the same season as hatched; whereas heavy breeds, like the Buff Orpington, cannot be hatched too early. Should the production of table chickens be the aim, it is quite possible that late chickens, if properly cared for, will be quite profitable. I have had them hatch as late as the first weeks in July, and had good profits from them. They are not so large in the fall as the earlier hatches will be, but their cost of keeping has been much less. May and June are generally good months for rearing chickens. There is an abundance of animal and vegetable food, which are the two chief factors in the rapid development of the growing chick. The days are usually long and warm, which reduces the risk of loss considerably. So far this season, however, the problem of raising chicks has been rather difficult in Eastern Ontario, owing to the excessive rainfall and continued cold weather, so that breeders of the lighter breeds, such as the Leghorn, will have the advantage of being able to delay the hatching season somewhat, and suffer no loss thereby in the egg production later on. Almost any of the lighter breeds, if well cared for and fed on suitable food, should be ready for laying when five or six months old.

There is often difficulty experienced, in late spring or early summer, in hatching. Chicks are or appear to be weaker, and unable to get out of the shell, while very often the germ dies before the tenth day. This trouble is felt much more in artificial incubation than natural, but it probably arises owing to the condition of the breeding stock, which, as a result of a season's heavy laying, are getting run down, and require rest for a time. Some of the troubles prevalent during the hatching season can be averted if the atmospheric conditions are studied. This applies to both hens and incubators. When the weather is very dry, a small panful of clean water should be placed under the egg tray in the incubator; and if the hen's nest be not placed directly on the ground, a little water should be sprinkled on the eggs during the last few days. Insects on the hen will be a source of much trouble in many cases, and, when not attended to, I have heard of hens leaving their nests solely on account of the insect pest. Where incubators are used, care must be taken not to let the machines get too high in temperature, especially in the daytime, when the sun's rays heat up the atmosphere.

Poultry-keepers who yard their fowl find trouble with the lighter breeds flying out of their pens. I had a flock of Leghorns one year, and found it almost impossible to keep them in bounds. As a last resort, I tried wing-cutting; that is, clipping the wing on one side, so as to upset the balance in an attempt to fly. If the wing of a strong-flying wild bird is cut this way, it will fly around in small circles, its tail rudder being insufficient for straight steering against so much wing-power on one side. If both wings are cut, the bird will be able to fly, although not so strongly. There is no occasion to cut right across the wing, and it should not be done, for two reasons, one because it is unsightly, whereas, if only the long flight-feathers at the far side of the wing from the body be cut, the stumps fold underneath the feathers in the front of the wing, and the cut part is not seen when the bird is at rest. If the feathers are cut right across the wing, there is an unsightly gash across the bird's side, and the cold is let in enough to cause the bird serious discomfort, if not positive injury in cold weather. The feathers, of course, grow again after the moult, but probably will not have to be cut the second time, as the hens are quieter in their second year, and it is usually the pullets which are the offenders. Cockerels of any breed rarely try to fly out. Occasionally a fowl learns the trick of climbing up the wire like a parrot, and the only way to prevent this is to turn the wire at the top toward the pen.

For rearing chickens in the early part of the year by the natural method, a double coop is best. The best kind I have seen is made in two parts. It is about four feet long, by twenty-one inches deep, eighteen inches high in front, and fifteen inches high behind. It is divided into two parts, one twenty-one inches long, and the other twenty-seven inches long. The ends, back, top and front of the smaller compartment are made solid; the top, which is made in two parts, and the door in front, being hinged to allow of it being cleaned more easily. The partition and the front of the longer compartment are fitted with laths two inches wide and two inches apart, the center one in each case being made movable to form a door. Such a coop, placed with its back to the wind, affords sufficient shelter for a hen and her brood, as well as allowing for a scratching shed for the chicks apart from the hen, and especially useful in wet weather, as they can still have all the exercise necessary without getting in the wet.

NOTES.

In mixing soft foods, all stickiness should be strictly avoided. Hens do not like anything that sticks to their beaks.

Get rid of your young cockerels when they are three or four months old. The older they get, the more it takes to feed them in proportion to their gains.

Don't overcrowd. Flocks in smaller numbers pay better than the larger numbers. It is not a question of simple proportion.

When purchasing the initial breeding stock, the poultry-keeper must not allow himself to be influenced by thoughts of cheapness. The future success of his venture depends upon the quality of his stock-birds, and if the ultimate aim is to produce birds which will command a higher figure than ordinary market prices, sound quality is absolutely essential in the original breeding stock.

Don't neglect to provide grit and lime within easy reach of the fowl. They need it now quite as much as in winter, and very often are not able to get enough without having it supplied by their caretaker. One writer says: "Grit, more grit, and grit again," or something to that effect. The grit question cannot be too strongly emphasized. It means health, strength and vigor for your flock. C. C. S.

GARDEN & ORCHARD.

A Plant Cancer.

Bulletin 235, Bureau of Plant Industry, just issued by the U. S. Department of Agriculture, is entitled, "The Structure and Development of Crown Gall—A Plant Cancer. The bulletin, fully illustrated, is devoted to showing the various ways in which a common growth on plants is like malignant human tumors. Curiously enough, in all the years of cancer research and out of all the effort put forth to discover the cause of this mysterious disease, it has never occurred to investigators that there might be an analogous disease of plants which would throw light on its origin. Tumors in plants range in size from a half-inch or less in diameter to a half-foot or more. The name commonly applied to them is crown gall, but they grow on various parts of the plant. They occur on fruit trees, berry bushes, rose bushes, ornamental trees, etc., and are very common throughout the entire United States, and also in the Old World. Some of the facts brought to light by the Department studies are these: Crown galls consist of an overgrowth of the plant tissues themselves, and in general appearance are not unlike cancers, and are destructive to the individuals harboring them. Like breast cancers, these growths send out roots into the deeper, sound tissues, and upon these roots secondary tumors develop, so that, when excisions are attempted, if any portion remains, a new growth develops, exactly as in cancer; also, the secondary tumors developed from the strands or roots have the structure of the mother tumor. For example, when a primary tumor has developed on a stem, the roots of this tumor often enter the leaves, and there develop secondary tumors, which are not distorted leaves, but have the structure of stems; the tumor then destroys the leaf, developing as a morbid, perishable stem. Other likenesses are pointed out. The Department has discovered that these plant cancers are due to a micro-organism, which has been cultivated pure, and with which they can be produced at will. The bacteria have been isolated both from the primary and from the secondary tumors. The organisms occur inside the cells, and under its stimulus the mechanism of abnormal growth is accomplished.

THE FARM BULLETIN.

Between the Seeding and Hay.

By Peter McArthur.

This morning I went out—but not for a walk. Going for a walk would have been altogether too purposeful for such a hazy, lazy day. I just put one foot ahead of the other and dawdled along. The mood I was in was like the one that inspired Gelett Burgess to write:

"My feet they haul me round the house,
They hist me up the stairs;
I only has to steer them and
They rides me everywheres."

Last night a series of thunderstorms had gone over and around, and the sky was curtained with "clouds returning after the rain." But in spite of the clouds the morning was hot, and thunder was muttering in the distance. All nature was incredibly fresh and green, and the air was heavy with damp perfumes. At the edge of the woods I found a little patch of wild strawberries, and for the next few minutes life was very good, though it would have been still better if the berries had been already picked and waiting for me, spread temptingly on a broad leaf. Drifting into the woods, I found a grassy bank that was reasonably dry, and sprawled down on it luxuriously. It was exactly the time and place to remember Carman's immortal spring song—the most glorious thing of its kind in the language:

"Let me taste the old immortal
Indolence of life once more;
Not recalling, nor foreseeing,
Let the great slow joys of being
Well my heart through as of yore!
Let me taste the old immortal
Indolence of life once more."

It gave me something of a thrill to remember that it was almost on that identical spot I had read the poem for the first time twenty years ago, and had vibrated to its wonderful rhythms. The poet had sent it to me in manuscript as soon