resorted to." This warning is one that may well be given to Ontario buttermakers. We recently heard a creamery-owner say that he was going to put all the water into his butter that the law will allow. In trying to get all the water in butter which the law will allow, some of our buttermakers are likely to get more than the law allows. Someone is likely to suffer.

GATHERED CREAM.

The bulletin on "Gathered Cream," by Messrs. Ruddick and Barr, is full of practical suggestions for improving the results at the cream-gathering creamery. It is illustrated with plans for water tanks to hold cream cans for cooling cream from a separator or for setting milk in; to raise the cream by gravity process in deep cans.

The table on page 10, showing the relation between percentage of fat and quantity of cream, is a very good guide to the operator of a separator who has a Babcock tester or facilities elsewhere for testing milk; but he may as well have the cream tested, also, and know what percentage of fat his cream contains, thus saving the trouble of weighing milk and cream. The table is of little or no value unless the fat in milk is known. Then, too, it should have been qualified, by saying that the table is correct, assuming that there is no loss of fat in the skim milk, nor in handling the milk. As there is always some loss in both, the table, in any case, is only approximately correct.

The summary of important points includes some very good paragraphs, that have been quoted last week in this department. H. H. D.

POULTRY.

SEASONABLE NOTES ON POULTRY MANAGEMENT

Under the general classification, "Farmers' Bulletins," the United States Department of Agriculture, at Washington, issues from time to time a series of very instructive and readable publications. One of the latest to hand is Farmers' Bulletin 287, by G. Arthur Bell, Assistant Animal Husbandman of the Bureau of Animal Industry, Washington, D. C. It is entitled "Poultry Management," and is a condensation of an article written for the twenty-second annual report of the Bureau. We quote from it a number of seasonable suggestions for the Poultry Department of "The Farmer's Advocate" this week:

WATER.

Plenty of fresh water should always be accessible to the hens. If supplied irregularly, they are likely to drink too much at a time. It should not be exposed to the sun's rays in summer or allowed to freeze in winter, if this can be avoided. A flock of 50 hens in good laying condition will require 4 to 6 quarts of water a day.

MILK.

When properly fed, milk is excellent for poultry. In feeding sour milk or buttermilk, however, the feeder must be careful not to give too much, or bowel trouble will likely result. Skim milk is an economical feed. Skimming leaves the most valuable food constituents—the nitrogenous substances—in the milk. Not only does this skim milk contain much nutritive material, but contains it in a form which, as a rule, is easily digested. Skim milk may often be advantageously substituted in part for meat. Milk may be used in mixing the soft food, or it may be given to drink in addition to water.

FEEDING HOW OFTEN PER DAY?

Some poultrymen feed their flocks twice a day, others three times. The best plan is to feed fowls in confinement three times, and those having free range in summer twice a day. When there is a long time between feeds, it is difficult to keep confined fowls busy, and idle birds contract bad habits, such as feather-pulling, egg-eating, and the like, besides going out of condition for lack of exercise.

EFFECT OF FEED ON CHARACTER OF EGG.

In extreme cases the flavor and the odor of the feed have been imparted to the egg. Onions have been fed in sufficient quantity to bring about this effect. Feeds of high and objectionable flavor should not be used by those who desire to produce a first-class article. In no case should tainted feed be allowed to enter into the ration. Feed also has an influence on the color of the yolk. Corn fed exclusively will give a deep-yellow or highly-colored yolk, while wheat fed alone will produce a much lighter-colored yolk. A fairly high-colored yolk is usually preferred, and may generally be obtained by feeding a moderate amount of corn. Plenty of green feed also deepens the color of the yolk.

DROPPINGS AS AN INDICATION OF HEALTH.

The condition of the droppings furnishes a good indication of the hen's health. They should be of sufficient consistency to hold their shape, but not too solid. The color should be dark, tapering off into grayish white. If the droppings are soft or pasty, and of a yellowish or brownish color, it indicates too much carbohydrates (starchy, sugary and such matter) or a lack of meat. If the droppings are watery and dark, with red splashes of mucus in them, it indicates too much meat. A greenish, watery diarrhœa usually indicates unsanitary conditions in the surroundings, the feed or the water.

SEPARATING THE SEXES.

Poultrymen consider it a good plan, where convenient, to separate the cockerels and pullets, as both will thus develop better. In the case of the more precocious breeds, they should be separated when removed from the hen or brooder. The slower-maturing varieties may be allowed to run together somewhat longer, but in any case the separation should be made before the cockerels begin to annoy the pullets.

TEACHING THE CHICKS TO ROOST.

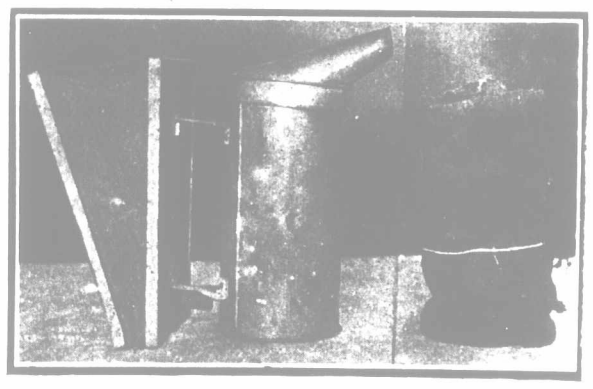
It is often advisable, says Bell, in his bulletin on "Poultry Management," to teach the chicks to roost when eight to twelve weeks of age. When allowed to remain on the floor, it is difficult to keep them clean and to keep them from crowding. If wide roosts—3 to 4 inches— are used, there is but little if any more danger of crooked breasts than if the chicks are allowed to remain on the floor. The chicks can generally be taught to roost by putting the perches near the floor, and placing with them one or two old hens or older chicks that are in the habit of roosting. If this plan is inconvenient, or does not prove effective, the chicks may be placed on the perches after dark for a few nights, until they have learned to go there of their own accord.

APIARY.

SMOKER FUEL.

Editor "The Farmer's Advocate":

Anything that will hold fire and give smoke can be used as smoker fuel. But for all that, certain kinds of fuel are more desirable than other kinds. Rotten wood is, perhaps, more used than anything else. It will hold fire well, too, if it is of hard woods. I don't like it as well as what I now use, rags, because it is too much trouble to get it. Some apiarists use excelsior—wood-shreds in which breakable things are packed for transportation—and it burns well, and gives a good smoke, too; but for me, it is not lasting enough. As all beekeepers do not see things in the same light, others may find excelsior excellent; that's why I mention it. "Gunny" sacks have been used by one New York beekeeper for a good many years. He lays them outdoors for several months so the action of the sun and rains will partially rot them. If they are not allowed to rot, they will not hold fire so well, and are more liable to blaze when working the smoker bellows much, as I know from experience. After the sacks have rotted enough, they are rolled onto a stick—window-shade fashion--which is then pulled out, and



Smoker and Rag Fuel.

the sack chopped into lengths to fit into the smoker. The cutting-up can be done more expeditiously with a broadaxe than with an ordinary axe. A string should be tied around each piece so it will not unroll again. This had better be done before the sack is chopped up. Not knowing but that someone may not think of it, I will add that the sack must not be so long that it will roll up thicker than the inside of the smoker fire-cup. In order to have the "wads" catch fire quickly, one end of each should be dipped in a saturated solution of saltpetre. A little red lead or other coloring should be added to the solution to color the "wads," so one can afterwards tell which end to light. The solution can be made in a shallow dish, not over half an inch deep.

Instead of gunny sacks, one can roll up any kind of old cloths, and treat them as mentioned above. As with gunny sacks, it is better to expose the cloths to the sun and rain [illegible]

A year or so ago, Gleanings in Bee Culture suggested the use of greasy cloths for smoker fuel. The editor said that it could be picked up on railroad tracks, where it is dropped by engineers. That's a good idea. I have, however, not found it necessary to get greasy rags from there, for we accumulate sufficient for smoker fuel by saving every rag used for wiping off greasy machine parts, buggy axles, etc. As such oily rags light easily and burn well without any further treatment, I do not roll them into "wads." If a piece is too large for the fire-cup, it is torn smaller. I like to put a few chips of wood on the bottom of the fire-cup, then drop on a few coals from the cook stove and fill the smoker with the greasy rags. By putting on more rags as soon as they burn down in the smoker, one need not relight the smoker for the day.

Wis. F. A. STROHSCHEIN.

GARDEN & ORCHARD.

SYSTEMS OF PACKING AND SELLING APPLES.

Last week, under the heading, "History of the Apple Trade in Ontario," we quoted from Mr. McNeill's bulletin on "Co-operation in the Marketing of Apples," concluding with the four important requirements found necessary for successful catering to the foreign demand, to wit: Large lots of fruit; few varieties; uniform packing, grading and marking; and the employment of skilled labor.

To meet these conditions, a variety of methods are in vogue, for each of which something may be said. To quote again from the bulletin referred to:

1. The grower of the fruit may pick, pack and sell on his own account.

2. The grower sells on the tree, the buyer doing the picking and packing.

3. The grower sells, picking the fruit, the buyer doing the packing.

The selling may be "by the lump," or at a price per barrel, with a level price for 1st and 2nd, or a different price for each grade.

The first method does not enable a sufficient quantity of fruit to be gathered to impress the market. The expense of securing a suitable market is considerable, and is almost as much for a small quantity as for a large, and there is no opportunity of securing uniformity for larger lots. This method is largely confined to the local market.

The second and third methods permit a larger quantity of fruit being gathered under one brand with some degree of uniformity. But the cost of doing so is excessive, and must ultimately be borne by the grower.

The men employed in apple-picking are hired for only a few weeks annually, and it can be readily understood that high wages and indifferent services frequently prevail. It is not uncommon for a single buyer to have ten or fifteen gangs. It is asserted that a well-known operator employed at one time 70 gangs, working hundreds of miles apart. A proper supervision under such circumstances is impossible. As a result, time and money are wasted, partly as a necessary result of the methods of working, partly as the result of the class of help obtainable, which cannot be trusted, except under close supervision.

In 1904 many thousands of barrels of apples were bought at 50 cents per barrel, whereas it frequently cost no less than 45 cents per barrel to pick and pack the same apples.

In 1905 and 1906 prices for apples were higher, but there was no reduction in the cost of packing. It is asserted, too, by the buyers, that where the apples were bought by the barrel, the growers, either by cajolery or bribery, induced the packers to put in many inferior apples to increase the number of barrels.

In the older orchards, in which varieties covering the whole season were grown, it was also found impossible to visit the orchards at the intervals necessary to pick and pack the different varieties at the proper stage of maturity. A heavy source of loss, in consequence, was the waste which resulted from picking apples either before or after they were matured, or in allowing them to go to waste entirely. It not infrequently happens, too, that the buyer, through failure to barrel promptly, and leaving the fruit exposed to sun and frost, caused a partial or total loss. Generally the grower is the immediate loser. In a very few cases does the average farmer have an agreement so drawn as to cover these points, and if he does secure judgment, the buyer too often has no assets upon which he can levy.

The method of selling "by the lump" is very unfair to the grower, inasmuch as the buyer is likely to be very skillful from long practice in estimating the quantity of fruit in an orchard. The buyer and seller are thus not dealing on equal terms. In the few cases where the grower gets more than the orchard is worth, he is in the position of receiving money for which he has given no equivalent.

"Lump buying" is also responsible for having