

carefully noted, or too frequently repeated. The best method for cleaning milk utensils is to rinse the articles in use with cold water first, as cold water removes all stickiness of the milk from the sides of the vessels; afterwards use water as hot as the hands can bear and wash thoroughly, using a little Pearline in the water. Look well to the seams of the milk cans and pails, and any crevices where filth is apt to collect. The little places sometimes left by the tinsmith in finishing his work are very dangerous, as they are apt to be passed over by the dairymaid, and the tiny particles of milk gathering there from day to day begin to decay and raise havoc with the whole can of milk. In these small places the germs of decomposition are created, and the result is tainted milk.

After the articles have been thoroughly washed, boiling water only should be used for scalding purposes as a finishing touch to the cleansing. The vessels should then be placed in the open air, that they may become thoroughly aired before the next milking time.

Supposing the time for milking has arrived, the milkers should go to the milking place with clean hands, and should be equipped with some clean, warm water and a clean flannel cloth to wash and brush the cows' udders before beginning to milk. This should be the invariable practice of every dairyman at all times in the year. It is one very important part of the care of milk.

When the milk is first drawn (not half an hour afterwards, as some dairymen I know of persist in doing), it should be strained through a clean strainer. A cloth strainer is far superior to any other, for several reasons:—1st, It can be cleaned much easier; 2nd, Can be easily exchanged when worn out; 3rd, It will arrest the very smallest particles, and prevent them going into the milk; 4th, It is cheaper than any other.

There is no reasonable excuse for a patron sending milk to a factory unstrained, as the cloth sufficient to last a whole year would not cost more than twenty cents.

Immediately after the milk is strained it should be thoroughly aerated by means of dipping, stirring or pouring, to expose it to the pure air.

The most efficient method of airing milk is to procure a good aerator, which costs a paltry sum of money, and will pay for itself twice over in one season. The aerator is placed on top of the can with a cloth strainer inside of the receiving bowl, and it is ready to do its work. Thus the milk is both strained and aerated at once, saving time. Milk treated in this way does not require putting down in cold water, except in extremely hot, close nights. The surrounding atmosphere should always be pure, and the milk should not be cooled down below the temperature of the atmosphere, but should be just two or three degrees above, in order to keep up a slight evaporation. On the other hand, if the milk is colder than the atmosphere, it will absorb any impurities from it that may be afloat.

The night's and morning's milk should always be treated the same, viz., thoroughly strained and aerated before being carted to the factory.

The cream should not be removed or any part of it, nor the strippings kept back. This reminds me of an incident that occurred at a certain factory in which it fell to my lot to hold a meeting. The cheesemaker had instructed the patrons not to strain their milk, and when I asked why he had done such an outrageous thing, he said that if the milk was dirty the patrons would not be so apt to take any cream off. I assured him that he needed to issue better laws than that, and see that they were enforced. That man was making the poorest lot of cheese I found while making that tour.

The cheesemakers do not require green, unripened milk, as is generally supposed by the average farmer; rather he desires his raw material matured, for if it is not so he has the trouble of maturing the whole bulk of milk received, a work which is better to be done by the farmer himself.

In summer the milk is generally in a proper stage of maturity. It is in the autumn, when the cold nights come in, that the patrons should look more carefully to the condition of the milk.

After the proper straining and aerating, the can of milk should be taken to the kitchen, where the temperature should be about seventy degrees. If milk is thus treated, it will be in proper condition when it arrives at the factory. Consequently the cheesemaker is enabled to perform his work better and exercise his skill more thoroughly.

Milk should never be allowed to become frosted or chilled, hence the reason for conveying it to a moderately warm place in cold weather. Frosted milk has a bitter flavor, and will impart it to the cheese or butter; so it is most important that farmers furnishing milk to a factory should study milk, i. e., what it is, what it is to be converted into, and the best ways to care for it, and give every assistance in his power to make the finest article possible. It should be the aim of the patrons, one and all, to furnish pure, sweet, wholesome milk to the factories. As the farmers are the first who have to deal with the raw material, a great deal depends on their treatment of it as to what the quality of the manufactured article is to be. The farmer's aim with regard to the factory should be to make it the best, not only in the county, but the best in the Dominion, by a hearty co-operation with the cheese or butter maker. They, too, should study one another's interests, and together strive to establish a prominent name for the factory they are connected with.

I have hitherto spoken only of milk as taken from the cow and conveyed to the factory, but it may not

come amiss to say a few words concerning the modes by which farmers may ensure the purity of the milk yielded by the cow. If the milk yielded by the cow is impure, no subsequent amount of care can make it pure. Very often, if tainted milk be traced to its source, it will be found in something affecting the animal. Foul odors breathed by the cow will affect the milk, so will poor food and bad water, the latter two more especially. More than one farmer, puzzled by tainted milk, after taking every possible care of milk vessels, etc., has found the source of the impurity in the water drunk by the cow. Hence the importance of supplying only the purest water for the cow to drink. She uses the water she drinks as a conveyance to carry the food she eats to the different parts of her body, and if the water is tainted the milk cannot fail to be so. Now who would dare to dream, for one moment, that pure, wholesome cheese or butter could be made from milk obtained under such conditions? Let the food given be pure, wholesome and succulent, and the water pure and plentiful, and give the same care a good father gives his children, and every farmer is assured of success in the dairy business.

POULTRY.

Poultry on the Farm.

BY IDA E. TILSON, WEST SALEM, WIS.

Poultry and larger stock very fitly combine, because their diet and care have so much in common. Ensilage, roots and clover hay do the same work for all. The bulk of green food and its small proportion of solid matter dilute a concentrated grain ration, and satisfy without overworking the digestive apparatus. That variety of meals and grains prolific layers need is already planned for where good milkers or growing pigs are kept. The same crops, purchases and storage answer in both cases. One-third each bran, shorts, and cornmeal is a fine pudding for hens, and any combination suitable to other stock can form at least the basis of our poultry food. For example, oil meal glosses biddy's coat, and in the quantity fed is only restricted by its laxative nature.

Perhaps animal food is most indispensable of all, if we are to have a constant supply of eggs. In summer, on a wide range, fowls make insects a great part of their living. Our northern year is more than half winter, however. Fowls are sometimes confined, too, while gardens are starting or berries ripening; and when they have gone over and over a piece of land, the insect crop does yearly diminish, not enough old bugs being left to replenish the farm. The meat supply becomes a serious question. Lard scraps, or cracklings as they are called, are excellent, but not obtainable at every place, and they are rich, needing care in use. It is also difficult to secure them early enough in the fall, and I have failed to keep them over summer satisfactorily.

If closely shut up, the scraps mould and sour; if left open, moths riddle them. Beef livers and hearts are good, but expensive, and all raw meat is very laxative. Beef bones boiled till their meat comes off are admirable, but the labor is great for its results. Several years in which my hens had sunflower seeds and sufficient milk, but no meat whatever, gave some of their best egg records. Milk is not so forcing as meat, but is a steady, thriving diet, and takes the place even of green food, when the latter cannot be supplied regularly. For young, growing fowls, it is the best of foods, making bone and muscle. According to our modern dairy system, skim milk is usually sweet, often nearly fresh, and on hand most or quite all the year. Though its fats have been taken for butter, there is left abundance of albumen and salts of lime, the very material for building frames or producing eggs. Skimmed milk in any form is relished, and preferred for drink above everything else, yet fowls never gorge themselves as they do with puddings and corn. During the hot months they will almost subsist and lay on it alone, because milk, being combined food and drink, does, while assuaging thirst, help supply biddy's system slowly but constantly, just as her quick digestion demands. An egg, or the animal frame itself, including flesh, is about two-thirds water, and my observation of poultry yards has discovered more lack of clean, fresh, suitable liquid supplies than anything else. Hens thrive also on buttermilk, diluted with a little water, which reduction is sometimes needed by new or rich milk. Buttermilk has its little globules broken open by churning, and is, therefore, already half digested. Unlike the natural acid of fruit juice, a fermented sour is poisonous, hence sour milk in time may produce bowel complaint. When so much curdled that its whey has separated, it is unsafe for the interior of either fowl or human being. The process better be completed and "Dutch cheese" made—a food strong as lean meat, and upon which the hardy Swiss mountaineer lives and climbs. Milk slightly acid, or of the consistency of boiled custard, is not so bad, but its effects must be watched, especially in hot weather, and rather than do so I usually correct by a little soda. Most poulterers withhold water from chicks the first few days of their lives, in order that they may get the start of those parasitic germs found in all but the purest water. Milk, if sweet, can be supplied freely at once, provided a proper drinking dish; and without the latter, need be withheld only long enough for the chicks to get steady on their feet, so they will not tumble around and in it, wetting their delicate down. A sardine can, with most of its cover remaining, showing only

a suitable slit at one end, or a cup inverted in a saucer, leaving but a narrow rim of milk, are home-made applications of that principle on which patent drinking dishes are constructed to prevent the soiling of their contents. For very little chicks, no food excels bread and milk, varied with oatmeal moistened by milk, custard and milk curd, a programme wherein this lacteal fluid is basis and staple all the way through. Of course, meal puddings, wheat, and all other suitable things are worked in early, but carefully. Milk freezes less readily than water does, hence the former is a superior winter drink. And if there be any panacea for all the ills hen-flesh is heir to, bread and milk furnishes it. I once read, however, of a poultry man with a surplus of oats and milk, who for several weeks kept his fowls exclusively on that monotonous diet, till they began to droop and die from bowel complaint. But, of course, poultry culture calls for the usual exercise of common sense and judgment.

There may be a question whether this valuable milk shall be given hens or reserved for other stock. But some who have watched and recorded comparative results, declare a pound of chicken or eggs is produced more cheaply than a pound of pork. We know the former product is certainly several times as nourishing and sells higher. The Chicago market report of Jan. 21, 1893, quotes live pork 7.85c. per lb.; dressed, 8c. to 9c.; live poultry, 10c.; dressed, 13c.; and eggs, 28c. to 32c. per doz. It takes a dozen large eggs to make a pound, some kinds would fall below, and these are not unusual prices for poultry products, while pork is at almost unprecedented figures, so the advantage is clearly with our hens. Theodore Louis, the Wisconsin writer on swine, tells of an institute where the following mottoes appeared on the walls:—"The horse is king," "The cow is queen," "The sheep has a silver hoof," to which he suggested be added this: "The pig is banker, because he discounts the others." I will now contribute another motto: "Poultry can crow over them all."

A Word About Incubators.

The practicability of hatching chickens by artificial means is no longer a matter of experiment or dispute. The incubator and brooder has proved its efficiency beyond a shadow of doubt. Enterprising breeders long ago discovered that chickens could be produced by the incubator in greater quantities, with less time, trouble and expense; and there are but few extensive poultry raisers to-day who are not using the incubator in preference to the methods of nature.

The advantages of artificial incubation are many. First, there is no waiting for a broody hen; an incubator is always ready to set, never deserts its nest, does not eat the eggs nor clumsily break them. Another advantage of the incubator is that it enables the breeder to always have his chickens ready early in the season, and obtain the best market prices.

LEGAL QUESTIONS AND ANSWERS.

[Answers to legal questions of subscribers, by a practicing barrister and solicitor, are published for our subscribers free.]

Allansville, 20th Jan., 1893.

DEAR SIR,—Kindly answer these questions:—
Q. 1.—Is there any horse condition powder or cattle spice patented or registered in Canada? 2. Also, what protection does a patent give?

SUBSCRIBER.

A. 1.—There probably is a formula or description of composition of matter for several different condition powders, etc., registered in the patent office at Ottawa, but in order to ascertain what they are and what patents thereon have been issued, it would be necessary to obtain the information by searches in the Patent Office, at Ottawa, and these searches could most conveniently be made by engaging the services of some person at Ottawa, or by communicating with the Commissioner of Patents, who would furnish the information on payment of the usual fees. 2. Assuming a patent has been granted, the holder of the patent is entitled to the exclusive right of making, using, etc., the invention during the term mentioned in the patent, the time being either five, ten or fifteen years. This protection, however, is only obtained or enforced by the holder bringing action at law to restrain an infringement, and, of course, in any such action, the validity of the patent itself is always a question to be decided, and the holder of the patent then not unfrequently finds that a patent is no protection to him whatever, as it may be declared void, either in whole or in part. Great care is requisite in taking out a patent, in order to afford the protection required, to be sure that the alleged invention is new, and to have the patent accurately defined.

Q. Is it necessary to have a swamp fenced all round to prohibit hunting in it, and will written notices do as well as printed ones, and how many are required in a forty acre swamp?

WALTER S. COWAN, Crieff, Ont.

A. No; the fence is not absolutely necessary. The law surrounds every man's property with an imaginary fence, and any person trespassing, even on unfenced land, after notice warning him not to do so, is punishable. As to the means of giving the notice, that is a matter for the owner to decide upon in considering the circumstances of each case, so as that the trespasser shall receive the notice. It may be given either in writing or verbally, personally or by placing either written or printed notices so that they will come to the notice of the trespasser.