period that the cramming takes place. This is a shed 30 feet by 14 feet, and accommodates 500 birds when full.

8. A portable continuous brooder has been built on the farm, holding 160 young chickens. It is heated by lamps and pipes. Runs are fitted outside, and, as the house is upon wheels, it can easily be moved to fresh ground.

9. Outdoor brooders of various makes, coops, etc., are accommodated in the home paddocks.

10. Open-fronted Houses.—Recently a range of scratching sheds has been erected, the houses of which are built on what is known as the open-air principle, and are largely used for experiments. These houses are 10 feet square, in which the roosts are at the back, where is also a laying compartment. The front of the house is formed of wire netting, and it is uncovered both in winter and summer, so that the birds are practically in the open. It is interesting to note that the hens in these houses have laid better during the winter than those in house of ordinary type, an indication of the importance of fresh air. In the first four of these houses (9 to 12) a comparative test is being made of the ordinary and hopper systems of feeding.

11. Duck-breeding Pens.—Through the fields there is a stream about 12 feet in width, which is excellent for the ducks, which are accommodated in four houses.

12. Colony System.—In the lower field the colony-house system of keeping fowls is demonstrated.

13. Portable Poultry Houses.—These houses can easily be moved about, and vary in size and design. In one of these the birds are fed in the afternoon; they are then shut into the run, and go in to roost when they like, also coming out in the morning as they wish. This saves a great deal of labor, but is more costly in initial outlay. Several of these houses are fitted with a simple arrangement for raising upon wheels for removal. Where that is the case, they have no other floor than the earth, and labor in cleaning is saved.

THE FARM BULLETIN.

HAY, SPRING GRAIN, FODDER CROPS, AND RYE

Editor "The Farmer's Advocate":

I read with a good deal of interest the letters on haymaking that appeared from time to time in the columns of "The Farmer's Advocate," giving the views and relating the experience of many of Canada's most successful farmers, but when I laid the paper aside and looked out on the fields and meadows I was forced to exclaim, "The advice is good, but where is the hay!" for up until June 20th, within the memory of the writer the prospect for a hay crop never looked so discouraging. To make matters worse, the bottom of the mows were reached early in May, even before a green blade appeared in the pastures, and the price of hay jumped to $30 per ton, and was hard to obtain even at that price. Farmers, as a rule, are the most optimistic of all men, and although the barns were empty and the weather cold and backward, seed time and harvest was promised, and spring work was proceeded with, just as if we were the most favored lot of men in the world, and that a lean year was the exception and not the rule. Some there were, however, whose faith was weak; pulled up the stakes and went West, leaving more vacant farms behind; but the majority did not grumble more than the occasion seemed to demand, and the situation to-day calls for rejoicing instead, for the weather during the past month was everything that could be desired. The hay crop will not be a large one, but will be at least twenty-five per cent. better than it seemed possible it could be a month ago. Grain of all kinds is growing fine; frequent showers and warm sun does the trick all right. The root crop is in splendid shape, and in the past few weeks bare fields have changed into "seas of waving green." Vegetation has been so rapid, we are inclined to think that farmers have made the mistake of winding up their seeding operations in too much of a hurry. We have arrived at this conclusion by seeing a field that was sown July 4th with vetches, oats, and a small quantity of buckwheat that was out of the ground in eight days, and at date of writing is covering the whole field with a luxuriant growth, and gives promise of a heavy yield of green fodder if weather conditions keep right. Buckwheat sown alone on July 8th has a promising appearance, and turnips sown the same week are now nearly ready for thinning. These things being so, why is it that so many of our farmers put their plows, harrows, seeders, etc., into the barn so early in the season, and next winter pay out their money to Ontario millers for millfeed that ought to be raised on their farms? We hear a good deal nowadays about balanced rations, in which costly feedstuffs figure prominently, but given a good cellar of turnips, plenty green feed, such as green corn (silos being out of the question), oats, vetches and peas cut in the milk, and well cured, we think if the herd of dairy cows did not give a good account of themselves at the pail, the fault must certainly be in the cows. The old Scotch spirit of strife (good in some respects) that makes one farmer try to get his crop into the ground ahead of his neighbor, is to some extent responsible for the fact that we are depending too much upon our hay crop to tide us through the winter, and instead of taking advantage of every opportunity to get all the seed into the ground we can while the season lasts, we are too apt to indulge our optimistic spirit, and hope that next season may do better for us than the past one.

There is another crop, not spoken of often, seldom read about and very seldom seen, that it would be well for us to take into consideration, and for which there is yet plenty of time to get ready. We refer to rye, called in Europe the poor man's crop. Sown the last week of August, or up to September 10th, it can be pastured in early winter, when there is not a green bite elsewhere, and can also be fed to some extent before the other pastures are ready in the spring, and afterwards cut for hay, and while the quality is not the best, if cut before it gets woody it makes a very good substitute. We hope to see all our farmers give it a trial the coming fall.

Pictou Co., N. S. ANDREW McPHERSON.

THE FLY PLAGUE.

Editor "The Farmer's Advocate":

The fly pest is a serious loss to every farmer with cows. You can figure the loss in milk at from two to three dollars per head per month, saying nothing about what they lose in flesh. A farmer may feed liberally of chop, and yet the cows will shrink anywhere from 10 to 15 lbs. per day. It should not be the case, if we could get some means to keep down the flies. Anything I have tried cost too much to use. Considering the time it takes to rub it on, and the cost of the stuff, it is a losing business. What we want is something that a couple of hands can put on in a very few minutes. In the busy season time is very valuable. I wish the Government would take hold of it, and assist us in finding something that is cheaper and quicker than anything yet advised. I think I am safe in saying that every farmer keeping 20 cows loses more than a hundred dollars in a season. We lose far more than we really realize. Will you be kind enough to call the Government's attention to the fact, or assist us in any way that you know of?

ARCHIE McVICAR.

[Note.—We shall be pleased to hear from the authorities of agricultural colleges and experimental farms, as well as commercial farmers, who may have found a cheap, effective and unobjectionable means of dealing with the fly pest.—Editor.]

DEVELOP P. E. ISLAND'S ORCHARD RESOURCES

A. McNeill, Chief of the Fruit Division, Ottawa, said to a representative of the Guardian, Charlottetown, P. E. I.: "I see that you have organized a '200,000' in Price Edward Island. I have a scheme which I think will fall right in with their object. Let the farmers of Prince Edward Island plant 100,000 trees next spring. This would make, at 50 trees to the acre, 200 orchards of 10 acres each. An orchard of 10 acres will give work and revenue for one more family on the farm. Taking the usual estimate of five persons to the family, these two hundred orchards will then require at least one thousand additional population. This will be something for the 200,000 Club to start with." Mr. McNeill said he would be glad to co-operate with the 200,000 Club in organizing a campaign among the farmers to secure this additional population to the Island. One great advantage of this scheme would be that it could be carried out without interfering in the least with any other work or scheme that is now in operation.

GRASS A WEED IN THE ORCHARD.

Mr. A. McNeill, Chief of the Fruit Division, Ottawa, is reported to have said at a P. E. Island orchard meeting, in referring to the orchard of John Annear, Lower Montague: "This orchard would do credit to the best parts of Annapolis Valley or Southern Ontario. The trees are well sprayed, well pruned and trained, and are most admirably clean." He pointed out to the audience that there was no grass to be seen among the trees anywhere, and that where crops were grown between the trees they were all late starting crops, and all kept scrupulously clean; no grain nor grass was grown anywhere among trees. "Grass," said Mr. McNeill, "is one of the worst weeds that can get into an orchard. More than half of all the failures in growing apples on the Island can be traced to allowing grass to grow up around the trees. If a man does not intend to keep his trees absolutely free from grass for the first six or eight years, at least, he had better not waste money buying and planting them."

FAIR DATES FOR 1907.

Aug. 23-30—Iowa State, Des Moines.
Aug. 26 to Sept. 9—Canadian National, Toronto.
Aug. 29 to Sept. 6—Detroit, Mich.
Sept. 2-14—Dominion Exhibition, Sherbrooke, Que.
Sept. 6-14—Western Fair, London.
Sept. 9-13—Indianapolis, Ind.
Sept. 9-14—New York State Fair, Syracuse.
Sept. 13-21—Canada Central, Ottawa.
Sept. 14-21—Fredericton, N. B.
Sept. 17-19—Guelph.
Sept. 18-20—Woodstock.
Sept. 25 to Oct. 3—Halifax, N. S.
Sept. 27 to Oct. 5—Springfield, Ill.
Oct. 8-11—Charlottetown, P. E. I.

THE "IDEAL BUTTER SEPARATOR."

Modern invention supplies us with many wonderful discoveries and not a few failures. To discern and utilize the valuable discoveries and reject the spurious requires a degree of sound judgment, fortified by careful reading and study. Fortunately, there are numerous experiment stations, well-informed private citizens and discriminating journalists quick to detect impositions and warn the public against them.

Among the many fields open to exploiters of questionable apparatus, the buttermaking industry seems to be one of the most alluring. It has had rather more than its share of such humbugs as dilution cream separators, Cole's hot-air process of making butter without churning, chemical compounds for converting caseous matter into fat, and the like, regarding which for years our readers have been kept well posted.

The latest contrivance in this line is an apparatus called the "Ideal Butter Separator," manufactured at Iroquois, Ont. This, it is claimed, is "a new invention, which will produce a maximum quantity of pure butter from sweet or sour milk and cream in five to ten minutes." After giving a description of the churn or separator, as it is called, the printed circular advertising the machine proceeds to explain the process in the following language: "The butter is separated by the combined action of the agitation of the dasher and the aeration of the air. The air is sucked down from the outside to near the bottom of the milk or cream, where it is distributed by centrifugal action and bubbles up, causing the separation of the butter globules."

The "advantages" are set forth as follows:

"1.—More butter is produced from a given quantity of milk or cream than by any churn. This is because it separates the globules of butter from the cream without breaking them. The old process broke them up by the continued friction produced by agitation.

"2.—The butter will keep better, since it is pure and has been thoroughly aerated. It has no mixture of casein or milk in it.

"3.—The residue is pure and sweet, and may be used for table use.

"4.—The separation is more rapid than any other separator, and the air introduced is always pure and does not bubble through more than once. This is because the air is drawn from outside the vessel.

"5.—The gearing is simple, and a child can operate it with safety. No cogwheels to catch the fingers.

"6.—No casein, albumin or impurity in the butter. It is not possible to remove these by any other process. The ordinary churning beats the butter-fat into an oily mass, containing all the impurities, such as casein and albumin. The Ideal Separator causes the butter globules to form separately and cohere together. The butter will thus not become rancid and smell offensively."

In order to ascertain how far the claims made for this invention might be supported in practice, a series of tests have been carried out by Frank T. Shutt, Chemist, Experimental Farms, Ottawa. In making the tests the printed directions were followed, cream and milk being used, both sour and sweet. The investigation, so far as the buttermaking was concerned, was conducted at the dairy of the Central Experimental Farm, the work of manipulation being left entirely in the hands of a representative of the manufacturers, sent specially for that purpose.

The results showed that in all the trials, except that with sour cream, there was an excessive loss of butter-fat in the buttermilk. Buttermilk ordinarily contains between .1 per cent. and .2 per cent. fat. In four out of five trials with the "Ideal" it was between 1 per cent. and 2 per cent. Owing to the proportionately large amount of buttermilk in these trials—due to water added during churning—the real loss of fat is much greater than is indicated even by these high percentages. In the case of the sweet cream, out of 128 ounces of fat in the cream, 9 ounces were found in the buttermilk, whereas with an ordinary churn and good work the loss would not exceed ¾ ounce. That is, the loss of fat by the "Ideal" method was twelve times as great as with an ordinary churn. Bad as this is, the showing was much worse with milk, both sweet and sour. In one test with the sweet milk, one-seventh of the total fat was lost in the buttermilk, and in the sour-milk test, one-fifth was lost. A partial explanation of these heavy losses was due to the high churning temperature (about 70 degrees) which the operator considered necessary for the successful operation of his machine. The temperature of the wash water he used was also high. The water content of the butter was dangerously near the legal limit, and in one case exceeded it. Analyses show that, contrary to the manufacturers' claims, the butter is not free from curd.

In addition to the loss of fat in buttermilk and wash water, a certain amount is lost in the apparatus, for, owing to its construction, it is impossible to remove all the butter from the mechanism of the churn. The total loss of fat was almost 2% with the sour cream; with sweet cream, 9%; with sweet milk, 33%, and with sour milk, 34%, or practically one-third.

"In conclusion," writes Prof. Shutt, "so far as our investigation gives proof, the only claim made good is that regarding the time of churning. The process appears to be one of the most wasteful of all those that have been put forward to supersede the ordinary or orthodox methods of buttermaking, and which have been examined in the farm laboratories during the past twenty years."