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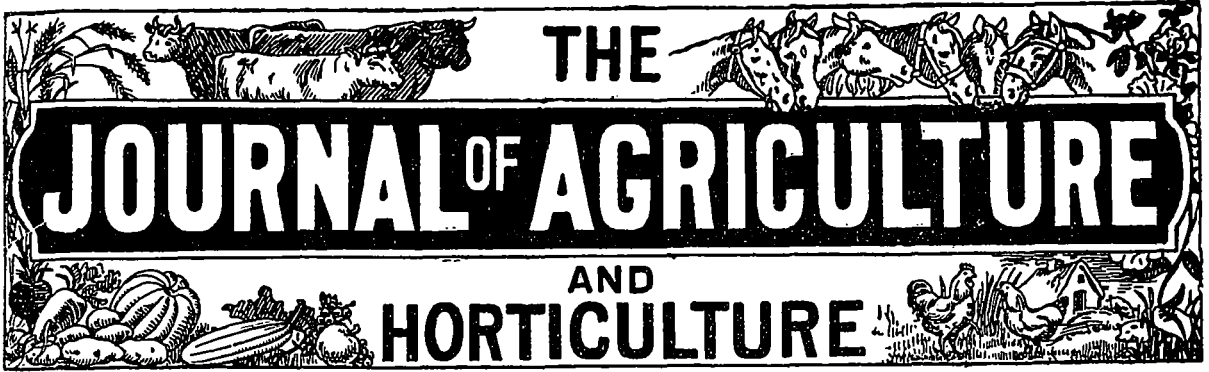
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Vol. 4. No. 4

This Journal replaces the former "Journal of Agriculture," and is delivered free to all members of Farmers' Clubs.

Aug. 15th, 1900

THE
Journal of Agriculture and Horticulture

The Farm.

NOTES BY THE WAY.

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bi-monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture etc. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

LA PATRIE PUBLISHING CO.,
77, 79 & 81 St. James St., Montreal

Subscription: \$1.00 per Annum payable in advance

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Here again is a chance for sheep-breeders! A Massachusetts man writes to the *Homestead* saying that in the townships, or counties, we do not know which, of Marlboro, Sudbury, and Stow, with a railway running through the property, within 4 miles of a city, and not 20 miles from Boston, there are abandoned farms—probably more than 5,000 acres in extent, that can be bought for from \$2.00 to \$10.00 an acre. "One of a hundred acres," he says, "with just as good buildings as mine, that 20 years ago could not be bought for \$6,000.00, can be had for \$2,500.00, and the wood in it would pay for it. The owner died, the children had all got settled (not nefariously we hope), and the land is growing up into wood." Now, if any one with a good capital, would buy, say, 1,000 acres of this abandoned land and start a real sheep farm on it, he could not help making money. We spoke about these chances some years ago in this Journal, and we heard that some one, whose name we forget, had taken our advice and had begun with a flock of about 400 ewes, but what was the result we never heard. Of course, there is no use sheep-farming unless the farmer is either a practical shepherd, willing to devote his whole time to the superintendence of his flock, or else able, and willing, to pay a skilled shepperd to do the work for him. The Massachusetts hills should be the very best home for sheep—short-wools of course, Hampshire-downs, for choice — on the continent, and there is plenty of bush-wood evidently on this tract to make hurdles for feeding off—we were almost going to say turnips, but will substitute

our favourite for wild as well as for other land—*raps*. Only fancy the yield of a crop of grain on these unaccustomed hills after the sheep-fold ! Mutton is very much sought after in the States, more than it ever was, and we do believe that there, in Stow, Sudbury, and Marlboro—why the very names smell of sheep, for the old county Stow, Sudbury, and Marlboro, respectively, in Buckinghamshire, Suffolk, and Wiltshire, are all on the chalk hills—these three places, we say cannot help, their situation being what it is, bringing in a good income to a careful man who will invest his capital there in a good, useful flock of sheep.

The crops.—A very peculiar season this, and one that we do not hope to see repeated. If there were a little sun now and then, it is possible that the very heavy crops of oats and pease might ripen, but scrawled all about as they are, they look more ready to rot than to ripen. A queer idea we heard the other day: the pease, in what the French call *goudriole* in some parts and *gabourage* in others, that is, the mixed crops of grain and pulse, act as a support to the oats ! If our friend, who told us this, could see the field that lies—at least the crop does—recumbent just outside our window !

The maize is very fine, though, owing to the persistent rainfall, there is more couch grass in it than there ought to be. Is anything gained by over-manuring light land for grain-crops ? A heavy dressing of dung, after a field has lain for 5 or 6 years in pasture, cannot be necessary. In the mean time, fields that lie a little out of the way never feel the dung-cart, and this is, we regret to say, too common in sight in this district.

The hay-crop was of course very light as well as very late, only finishing to-day, August 3rd. The quality too will turn out but poor, as there was no *top*-grass, all that there was being a sort of second crop, with a few heads of dead timothy among it. We should prefer good oat straw, cut pretty green, which, as there is a vast mass of clover this season with it, must make pretty good fodder. Is it wise to feed down closely the after-grass in places exposed to be left bare all the latter winter by the wind drifting off the snow ? We trow not.

The root crop, as we mentioned in our last, is in a parlous state ! The grass completely hid the mangels, until one looked down upon them, and yesterday there were two girls—endowed with

ineffable patience, we should hope—busily engaged in pulling up the “water grass” (not couch) by the roots. What the cost of this will be goodness knows ; there cannot be a quarter of a crop anyhow, and the labour expended must be enormous.

To-morrow I hope to look over Mr. Referd’s farm, when I expect to see something very different to the above.

An experiment in the preservation of brewers’ grains was tried some years ago by Mr. Henry Alleopp, the “India Pale-Ale” brewer of Burton-upon Trent, which seems to have answered capitally. Grains, as every one who uses them knows, are much cheaper in the summer, when every kind of grain-fodder is plentiful, than in winter, when, except where siloes are in vogue, succulent cattle-food is hard to come by. As for the ontory of some inexperienced people against the feeding of cows on grains, the experience of countless thousands, we might without much or any exaggeration, say millions of the English people, knocks that absurdity on the head.

Well, the plan pursued by Mr. Allsopp was, as nearly as we can describe it, something like this : a number of large, worn out butts were taken and filled with grain, hot from the mash tub ; these, as they were filled up were well trodden down by men, a sprinkling of salt being scattered over them every few inches. Over the grains, when the butts were full, was put a layer of spent hops, and a top of all, a well beaten layer of moistened clay. At the end of twelve months, the butts were opened and the grains was found to be as sweet and free from mould as they when put in.

Pig-food.—“Curiously enough,” said Mr. Grisdale, in his lecture on pig-feeding for bacon, last December, at St. Jérôme, “we found at the Guelph Agricultural College, that pigs did better on sour skim-milk than on sweet skim-milk.” Curiously enough, Arthur Young, “a plain Suffolk farmer” as Macaulay calls him somewhere, whose “Travels through France,” with its clear and wonderfully concise description of the agricultural practice of the north of France I have the good fortune to possess, this very Arthur Young made the discovery that pigs do better on sour than on sound food more than a hundred years ago, somewhere about 1784. He relates, in one

of his books, that I have *not* the happiness to possess, that after making several experiments on different foods in different states or conditions, he came to the conclusion that pigs do better on food that has been kept till it is sour than on the same food when fresh. Consequently, he built, we think he mentions ten tanks, all of which were filled, each in its turn, with skim-milk, whey, waste from the house, etc., and each tank was served out to the pigs in rotation, so that ten days elapsed before one tank used to day was again emptied.

Curiously enough, Arthur Young and Lord Chesfield, ambassador at the Hague, and the author of the "Letters," were the only two men who predicted the outbreak of the Great Revolution in France at the close of the eighteenth century!

SELECTION OF SEEDS

The seed grain competition under the direction of Professor Robertson, for which Mr. Macdonald so kindly donated the large sum of 10,000 dollars promises to be an unparalleled success. Already comes the cheering news that the Province of Quebec has entered the largest number of competitors in the list, not so large however as it should be if all farmers' sons stopped to consider all the advantages which they would secure by taking part in such a contest. To gather a hundred heads of wheat and oats and send them free of charge to Ottawa seems a small trouble and expense for the prizes offered. Furthermore, winners or losers will all be able to share in the same degree the benefits to be derived from continuous and systematic selection of seeds for three years, in comparison of which prizes, large as they may be, are insignificant.

Selection of seeds is in fact recognized to day as a most important item in the growth of crops and the results obtained from all experiments since the attention of agriculturists was turned towards the question amply confirms the belief that our varieties of grain are as susceptible of amelioration as are our breeds of cattle. No intelligent farmer would think of taking any but the best types of a breed to reproduce from, in the hope of fixing their desirable characteristics in their descendants. In the same way, the very plumpest grain only should be sown in order to augment the size and the weight of the grain produced by the variety.

Yet, the advisability of selecting seeds was not always an undisputed theory. It was long believed that the seed, whatever its weight or size might be, reproduced only the type of the variety to which it belonged, in other words, that the hope of increasing the yield of our crops rested only in the selection of the variety, as well as in the careful preparation of the soil. That the different varieties differ greatly in some characteristics cannot be denied. It is for the farmer to choose among those the one which answers best to his needs or to the needs of the market. But in the adoption of a new variety, the adaptation to soil and climate should be the first consideration. The farmer should carefully ascertain whether the new variety which is recommended to him has been tested under conditions similar to those under which he is placed. Furthermore let him not forget that the best of varieties will speedily degenerate if no care be paid to the selection of seeds. Early maturity, weight of seed, and yield of crops, are all qualities which can be developed or greatly improved through seed selection.

It would not be just to say that this practice has been neglected up to this day. It is the custom, on many farms, to select carefully the finest looking part of the grain crop and save it as seed-grain for the following year. This is certainly a very commendable method but it is not enough. The seed bearing crop should receive extra care, for extra care will pay. It should be grown under such conditions as to insure the maximum development of every plant. Thin seeding and drilling are indispensable requisites, not only to permit weeding and cultivating but also to allow a free circulation of air and sunshine all through to crop, thereby stimulating everywhere a strong and vigorous growth. The soil should also be carefully prepared, for the development of the stem always depends upon the development of the root.

Perfect seeds are obtained from plants which have been well fed, abundantly provided with air and sunshine, and free from diseases. The more mature the seed grain is before being harvested, the greater are its productive powers. Such is the lesson taught by Experiment stations. To secure the very best from the best, the heads should be submitted to a light thrashing, which will separate the ripest grain. It should then be repeatedly sieved in order to save only the plump-est and heaviest grain, and even hand picked if

time allows during the winter. Such grain will also have the advantage to be free from weed seeds which, too often, are found in large proportion in seed bought from the dealers.

If the Macdonald competition can prove to our farmers the necessity of giving great care to the choice of seed, and the advantages of relying only upon themselves for such, a great progress will have been accomplished in our agricultural methods, and the yield of our crops will soon be more remunerative.

C. M.

WEEDS vs. CLOVER.

To the Editor of the JOURNAL OF AGRICULTURE.

DEAR SIR,—Since I sent you my last notes on the state of the crops, there have been two very severe wind-storms and lots of rain. The first wind-storm could be called a gale without any stretch of the imagination and was at its height on Saturday the 30th June. It was very destructive, and was thought by some to be accompanied with frost, as after it was over the leaves of tender plants such as beans, tomatoes, etc., were blackened, and the leaves on the apple trees scorched and browned as if exposed to a hot blast from a fire.

Around Chateaugay quite a large number of apple-trees were blown down, many others split, large branches broken off like a clay pipe stem and about one-third of the apples that were on the trees were blown down to the ground. Another very severe storm happened later and I noticed by the papers that around where you are, at Ste-Anne de Bellevue, and Pointe-Claire, did quite a considerable damage, more in fact than on the south side of the St. Lawrence. Nevertheless more of the apples were taken so that now I hardly think there will be much over half a crop, if that.

Very rank grain was also blown down with rather a poor prospect of it being able to rise again. Great and all as the storm was it did not do very much harm to the weeds, a few of which I intend to write about in this article. They are a very large family, so I will only attack a few of the worst; they are white daisy, wild mustard, couch-grass (*chiendent*, French), and sweet clover. I shall treat of the last one first. It was, I believe, brought to this country by immigrants as a

flower (I cannot vouch for this fact), how persistently it grows whenever it gets root, and the seed is carried by birds and by the spring freshets to many sections yearly. There are two kinds of it, one with a white blossom, the other a pale orange colour. Of the two, I think the white grows the more vigorously; it wants to be cut at least twice to prevent seeding and in some sections three times. How to eradicate the roots unless by digging I cannot give an easy method; perhaps by summer-fallowing, if the roots were carefully gathered and burnt, would be the best (How about stubble-working after harvest? Ed.).

The French sections seem to be the home of the *chiendent*, scutch grass or quack grass (or in England, couch-grass), as it is called by some, but to my mind there is nothing quack about it, but a genuine pest. The only way to overcome it is by summer fallowing and gathering the roots and cremating them, if not the moisture will start them to grow again. Hoed-crops help to exterminate it if a dry season; but if the season is damp, your work will be nearly useless. The habitants pay no attention to the wild mustard, they say when we have mastered the *chien-dent* we have overcome the mustard too. By a little care the pulling of the mustard plants can be attended to if not neglected too long. I can assure you Mr. Editor, if all the beautiful yellow of the wild mustard and butter-cup was gold in America we should not hear much about 16 to 1 platform that is occupying the minds of our neighbours across the border.

I come now to the white daisy, last but not least, and I can assure you Mr. Editor that the farmers of the province of Quebec haven't got a monopoly of this pest. Some sections of Nova-Scotia can compete very favorably for first place. In some sections where the land has been a long time in hay or pasture the daisy flourishes superbly. The only remedy is to cultivate often, and if there is not manure to spare, plough down clover. If the farmers would only grow clover, in place of these noxious weeds, there would be no more talk of hard times. I do not know whether you ever heard the story of the tanner (not more than 67 years ago. Ed.). A city was bombarded by the enemy, when a meeting was called by the mayor to see how best to defend the city. One suggested a method of fortifications, another one something else, when the tanner was asked his opinion, he said very pompously: Gen-

lemen, there is nothing like leather, of course, he wanted to sell what he had; but I say, farmers, there is nothing like clover—where you are short of manure—sow 8 or 10 pounds of clover per acre with your grain crop, to plough down in the fall, only one dollar per acre, and see how quickly you will renew your soil. And if your faith be strong enough, one dollar and a half of seed would do even better. But we must keep on agitating these reform: better roads, better clover, and then good bye hard times.

Yours truly,

PETER MACFARLANE.

July 21st, 1900.

NOTE.—We know well the effects of green-manuring; but, as we have often remarked in this periodical, ploughing-down clover, with our seven months of indoor feeding of stock, is only admissible where there is no stock on the farm to eat the hay made from it. Ed.

APPROACHING HARVEST.

The principal difficulty which threatens us is scarcity of labour, and we shall see a great increase in the use of self-binders. These useful implements have been brought to perfection noon to soon, and will prove invaluable to large farmers in a few weeks. Harvest is indeed nearer than this, for in a fortnight we shall be on its threshold in early districts of the South. The tendency has been towards early cutting of wheat and oats, and is sometimes over-recommended. We are liable to run to extremes, and the somewhat rash statement that *wheat cannot be cut too green* is obviously absurd. Wheat should be ripe like everything else when it is cut, although the precise stage at which it may be considered ripe is open to judgment. Ripening looked at scientifically consists in the gradual transference of the juices and their solid nutrient constituents to the grain. It takes place equally in the case of grains and cereals, and is the reason why grass should be cut young. It is also the reason why corn should be allowed to stand until the migration is complete. It is often argued that wheat will ripen in the shock, but this idea must be qualified by the consideration that severance from the ground must dry up the juices and impede locomotion within the tissues of the plant. Also it must be remembered

that the entire plant is involved in the process of migration of nutrient matter to the grain; that roots and stubble end, as well as the upper straw, give up material to the head, and severance puts an end to the upward passage of albuminoids and sugar towards the formation of albuminoids and starch in the grain. There is a right time to cut wheat, which is practically shown by a fairly firm condition of the grain. Wheat should be well filled and firm before it is cut. Barley, on the other hand, should not be cut till it is hard and over ripe. The ears should be bent down, and the straw should be dry and brittle. The two cases are instructive. Wheat is for grinding, barley is for malting; and these diverse objects lie at the bottom of the variation in practice in harvesting the two cereals.

An early harvest is not expected, but if the present forcing weather continues it will come sooner than has been anticipated. It will tread hard upon hay-making.

As to hay, the later crops are much better than the earlier clover and field hay. Water meadows and late cuts generally have thickened wonderfully, and I should say will prove satisfactory. The weather has improved, and as I write good crops are being carted in perfect order.

JOHN WRIGHTSON.

THE WEATHER AND CROPS IN MANITOBA.

During the past few weeks the weather has been all that could be desired. Farmers as a rule are feeling more hopeful as late crops all promise well, and, if the season keeps free of frost long enough, much of the late crop will be ripened. This would go to help out the effects of the drouth. The assurance of plenty of feed has greatly changed the situation with many. There will yet be plenty of hay. The rains came too late to make a good crop of the wheat. It has been greatly benefited, but the country must make up its mind for less than half a crop. There are individual fields here and there that will give a good yield, while some sections will give a fair average yield, but these are not the rule. Reports from the Edmonton and Prince Albert districts show that full crops are expected. At St. Louis, near Prince Albert, Dr. Fletcher, while on his recent institute trip, saw wheat as high as his shoulder. We

should be thankful that our conditions are not as bad as our neighbors to the south of us, where very large areas have been plowed down. True quite a few acres have been plowed down in Manitoba, but nothing like as many as to the south of us.

Loose talk as been indulged in by our own newspapers regarding our crops, and when the threshers' reports come in their frothiness will be fully demonstrated. In spots where only limited quantities are grown, there will be a fair yield. but in the southern half of Manitoba, from which most of our wheat has always come, the rain came three weeks too late to do any good worth speaking of to all early sown wheat, though that on summer-fallow is much better than stubble wheat, a good deal of which has been or will be plowed down as manure, or cut for the little feed it will give and then be plowed. Take Souris as an example. Mr. McCulloch, of the flour mill, writes on July 12: "Our first sown crops have nearly all gone back and what is not plowed down will be very light. Later crops are picking up a little, but won't be half a crop." From Regina eastward, in spite of gushing statements from reporters, the yield will only be moderate and wheat on the Saskatchewan cuts a poor figure as a help to the total average. The cold truth on this question of crop yield is better for the farmers than whole columns of boom talk and if there is an average of $7\frac{1}{2}$ bushels from Winnipeg to Regina it is more than we expect to see.

N.-W. Farmer.

GROWING RAPE.

A plant that supplies a large amount of good succulent food for stock is rape. It can be grown in this country with little difficulty, and it is somewhat surprising that it is not grown more extensively than it is by our farmers. An ordinary crop will yield over twenty tons per acre of a most nutritious food. The plant is grown very extensively in the Western States for sheep feeding and for fattening lambs in the early fall. There is nothing better for this purpose than rape, and it can be fed either on the land or in the stable. It has got into some disrepute among dairy-men because of its bad effect upon the flavor of the milk. But bad results from feeding rape to milch cows have come from injudicious feeding,

such as turning cows into a field of rape and allowing them to feed at will. Such practice will undoubtedly taint the milk, and so it would if a field of fresh clover were treated in the same way. By feeding rape to milch cows in moderate quantities, say once a day, at noon, no bad effects will be noticed on the milk, and it will be a great assistance in keeping up and increasing the flow of milk. Rape is valuable for all kinds of stock kept on the farm, and a few acres devoted to this crop every year will be of very great value in supplying good succulent food during the late summer, autumn and early winter months.

Preparation for a crop of rape is similar to that described for roots in these columns two weeks ago. To sum up, a piece of sod land plowed and thoroughly prepared in the fall and then plowed shallow in the spring, keeping the manure and plant food near the surface, gives the best results. It is sown either in drills or broadcast, the best results being obtained by sowing in drills. These should be from 25 to 30 inches apart and one and a half to two pounds of seed per acre is sufficient. The cultivation is similar to that of turnips, though hoeing by hand is not necessary. Rape is often grown successfully as a catch crop after grain or early potatoes. When this is done the general practice is to sow it broadcast. For feeding lambs or young pigs in July rape should be sown the first half of May. But for the general crop for fall feeding the last half of June is the time best suited. To keep rape for early winter feeding it should be cut about the last week of November. This can be most readily done by an ordinary scythe, and by gathering the plants in heaps they can be taken to the stables when wanted. A hard freezing will not injure the plant for feeding purposes providing it is allowed to thaw out before using. There are several varieties of rape, but the Dwarf Essex is perhaps the best known. Another variety largely cultivated is the Victoria, but of these two the former is the better one.

In the last annual report of the Ontario Agriculture College *Experimentalist* gives the following advice as to the sowing and feeding of rape:

Soils and Manures.—The most suitable soils for rape are fairly moist loams, rich in vegetable matter. Soils deficient in vegetable matter should receive a coating of stable manure. A dressing of eighty pounds of nitrate of soda per acre when the plants are two inches high will usually increase the crop fully two tons per acre. Land

should be prepared for rape somewhat similar to that for corn or turnips.

Seeding and Cultivation.—About the middle of June, large, plump seed should be sown at the rate of one pound per acre in rows thirty inches apart and to a depth of about one inch. A thorough stirring of the first two inches of the ground between the rows every ten days or so increases the growth of the rape wonderfully. Flat cultivation is generally preferable.

Feeding Rape.—Rape makes an excellent late summer and autumn pasture crop for fattening cattle, sheep and lambs, for which purpose we have used it extensively. One season we pastured over 600 lambs on rape and sold them for the Buffalo, Halifax and English markets. When rape is pastured by hogs, it is considerably wasted, and when fed to cows it is apt to give the milk an undesirable flavor.

Animals should never be turned on rape when hungry. There is not much danger of animals bloating if they are turned on gradually at first, allowed free access to an old pasture field, and furnished with plenty of salt. There is practically nothing gained by feeding grain to animals when on rape. Lambs gain in weight from eight to twelve pounds per month on rape alone. We have cut green rape and fed it to hogs in the months of August, September, October and November with marked success. We have also fed it to cattle and sheep in the stable until after Christmas with good satisfaction.

Other Uses of Rape.—Rape grows best in cool weather. When sown on land where a cereal crop has been harvested, it frequently makes a good growth of plants which can be ploughed under as a green manure or used for late fall pasture. Owing to its broad and spreading leaves, rape has a wonderful power of smothering weeds, and is, therefore, an excellent crop for cleaning the land. (1)

Farming.

MIXED CROPPING.

The practice of sowing a mixed seed of cereals upon one piece of land is a very old practice indeed! Rye with wheat, barley with oats, oats drilled over a thin piece of wheat—all these combinations have their supporters, and possibly

(1) And should therefore be always sown broadcast. *Ed. J. of Ag.*

somewhere have them still. The chief obstacle to prevent any general revival of the practice is the growing determination of the average man, to have nothing but the best victuals.

The finest wheat flour is about good enough for him, and any suspicion that there is present in the meal any of the secondary grains is enough to make the ordinary solvent housewife reject the sample with scorn. Yet "mashline" (1) was once the ordinary food of country people, and there are still old fashioned recipes for cakes and "bannocks," which now cannot be properly prepared for want of the blended flour out of which the dainties used to be made. Peas were sown with beans, and a small proportion of the two were occasionally grown with cereals.

Against any continuance of this method of corn growing popular fastidiousness sets itself. Indeed, given good condition of the soil; timely sowing, and a good sort, and no crop can well be grown too pure for the farmer's benefit. But this rule hardly applies to crops grown for forage for animals. They clearly appreciate a mixture, as every favourite pasture shows, and a mixture of clovers with grasses is almost universal. Two plants not only agree with the eater better than does one, but two well chosen companions actually affect each other beneficially when growing; and a greater bulk is secured by sowing two or more kinds, as well as more nutritious and palatable provender.

There is yet a new development of the idea of planting two or more root crops in juxtaposition.

In some places in England it is common to see alternate breadths of kohlrabi and mangel sown, to be consumed together by the sheep. In other districts thousand headed cabbage is sown with swedes for the same purpose.

The mangel lends itself specially well to this combination cropping, because it is not only well kept sound a long time but can also be grown entirely with artificial manures. The importance of a mangel crop increases yearly. Our predecessors gave far too large a quantity of the root at one time, to fattening cattle feeding them in fact on unlimited mangels and hay; but it is now well known that mangels give a far better return when given in comparatively small daily rations with other food, which the root renders more palatable and more digestible. Mangel is the crop of the future, there being still capabil-

(1) From the French "mêler," to mix. *Ed.*

ities of improvement in it which no other root-crop possesses. The sheep is emphatically the most accomodating of all varieties of farm-stock. But it always needs variety of feed to make it thrive, and, therefore mixed cropping should need little recommendation for those who keep a flock. It certainly seems to be possible that the number of plants capable of being profitably cultivated as sheep food might be extended. Yarrow and parsley are so well known as favorite herbage, that one wonders that that no experiments have been made to secure a more leafy variety. Both could be sown with a corn crop.

In Belgium it was once a frequent practice to sow with a thin crop of any cereal a small deep growing carrot. The objection to this combination is the amount of labour which is required to dig out the small carrot. It is certainly time that the old idea should be quite got rid of, that improvement on farming has reached its limit and that there is any special wisdom now in preserving exclusively with the few crops and the short routines to which the occupiers of land have been condemned. It is a well known fact that to keep up a supply of milk, a large variety of food should be used—a constant abundance of succulent food—and this seems well nigh impossible without a greater variety of crops than we use at present. What is called catch-cropping—one crop following another in the same season—is only possible in some districts; but mixed cropping should be possible almost everywhere, and the key to success must be the finding plants which thrive naturally in juxta position and which depend for their own value upon different properties. The one must be grown for its root or seed and the other for its foliage. That there is such partnership in plants may be seen in nearly every pasture.

W. R. GILBERT.

HOW CLOVER HAY IS DRIED.

Let the Plant Dry Itself.

“What is the philosophy of curing clover hay?”

“I do not think that farmers care much for the ‘philosophy of it,’” said the scientific man. “The man with the mower and the hay rake does not care much for the opinion of the man who sits in the shade and tells the ‘how’ of it.”

“That may be true, but tell us how the water is best taken out of the green plant.”

“Well, of course everybody knows that hay is dried grass; that is, the water is taken out of the grass. Of course we cannot put water on the hay and have grass again.

When clover hay is cut as it should be, it contains almost as much water as an average sample of milk, and the problem is to get this water out of the plant as quickly as possible.”

“Most farmers believe that the best way to do this is to spread the grass out in the sun. Is that right?”

“No, not at all; it is not the sun that takes the water out of the grass. The sun will bleach and discolor it, and may do a positive damage when clover hay is spread directly out in the hot rays of the sun. The water is driven out of the grass chiefly by the wind. That is, by a circulation of warm, dry air through the grass. This however, is not the only way to cure clover hay, for the clover plant may partly dry itself.”

“Dry itself, how can that be possible?”

“Hold up a green clover plant, and have a look at it. There is a large surface of leaf, and a thick, heavy stem. Now, the leaf of the plant is, as you know, its lung, and through the leaf surface, a great deal of water is thrown off. There are few if any pores in the stem, and the only exit for this moisture is through the leaves. Plants throw off an immense amount of moisture in this way. The object in curing clover is to keep the leaf green and healthy as long as possible. When you spread the plant out in the hot sun, the leaves quickly shrivel and lose their power of sucking water out of the plant. The stem is left with a large amount of water, and no means of getting rid of it except by exposure to the wind, which is, as we all know, a slow process except in first-class haying weather.”

“You mean to say then, that if the leaves are kept green, the plant will really dry itself or suck out most of the water?”

“Yes, that is true. As a familiar illustration, you may cut down two trees, say in June, when the leaves are in full vigor. Take two trees of about the same size; as soon as one has been cut down, take your ax and lop off all the limbs or branches, so that no leaves are left. Leave the other just as it fell, and you will notice that the leaves retain their vigor for several days, or until they have sucked the moisture out of the tree.

Examine the two trees two or three weeks later, and you will find that one trunk contains far more water than the other. One tree was sucked dry by the leaves, the other was trimmed of leaves and no pumps were at work to drain the trunk dry. When clover hay is spread out to the sun as I have stated, the leaves which contain these little pumps are put out of action, because they are shriveled and dried up, and cannot do their duty. If soon after cutting the clover is piled in fair sized cocks, and left fairly open to the wind, the leaves remain green and strong, and the work of pumping the stems goes on until the whole plant is dried out."

"What is the best way, then, to cure clover hay?"

"It is not my business to tell you that. All I can give is the 'philosophy' of the matter, as you call it, and this may be summed up in a few words: *Let the plant dry itself.* Handle the hay so that the leaves will remain green as long as possible. The perfect leaves will suck the plant dry much faster than the wind or the sun could ever do it. The best clover hay will always be made in the shade. Most of the older men remember on the old farm, how mother used to bleach cotton cloth, by taking it out on grass and leaving it exposed to the sun. That took the color out of the cloth, and if a farmer wants to take the color out of his hay, he should leave it flat on the ground, and exposed as long as possible to the direct rays of the sun. There is no reason, however, why this should be done, for the green color of grass is standard, as much as the yellow color of butter.

—*Rural New Yorker.*

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

Reform of an absurdity must be good, and when it is worked for the good of the community at large must indeed be a blessing.

A slow but sure warfare has been quietly carried on for some time, as to the absurd fashion of people covering themselves with black on the loss of a friend or relative.

It is often worn as a mark of respect for the living, also to show in what esteem they held the departed one, and in such a case can be worn or not at the option of the wearer.

This what one might call duty-mourning.

The real trial comes to those people who wear and groan under the burden on a hot summer day. Widows, for instance, who think they are obliged to wear a certain number of inches of crêpe on their skirts for one year after the death of a husband. I was told by one of these good people, how thankful she should be when the year ended, and she could have some of the burden cut off, and I could not help thinking at the time how very little real mourning there was in this case.

However, the wearing of crêpe has almost gone out of fashion, and the sooner the heavy black follows suit the better. Why cannot people wear a sensible light material such as I saw a very nice young person wearing the other day, who had only lost her mother a few months, she had been a most devoted daughter to an invalid mother for many years. I feel certain she was much too unselfish to mourn in black for one whom she had watched suffer for many years.

Then this going into deep mourning often involves a debt at the store by those of limited means which is a constant worry to them till the debt is paid.

In case I should be called unfeeling, I may say since writing the above I have heard of the death of a dear and valued relative.

I shall not mourn her loss in outward appearance, but my heart will be as sore as if I cumbered myself with the deepest black.

I have expressed my feelings, at least as I look at the matter, through

MY SPECTACLES.

BICYCLING DRESS.

Although bicycling may not be so fashionable as it was a few years ago, when the craze for the exercise began, still almost everybody rides, and it is as necessary to have a bicycle costume as to have correct golf clothes. There is not a great deal of difference this year in the costumes that are worn for bicycling and for golf, excepting that the skirt of the golf costume is generally longer; but women are now riding the wheel in longer skirts than formerly, so that the same skirt will do for both. One of the newest styles is a gown of cover-cloth trimmed with stitched bands of the same material, and made with a most fascinating jacket, belted in at the back. The new cycling hat is one of the new white crin or heavy linen,

corded with black velvet, and trimmed around the crown with folds and rosettes of black velvet. This, like the gown, is very practical, shading the eyes, and at the same time being soft and becoming to the face.

THE BREAKFAST TABLE.

Many of us who are not over robust, and even people who are well and strong, do not feel at their best in the morning. It is a common complaint, that of feeling no appetite for breakfast. In many households where the husbands and sons have to partake of an early breakfast, that meal is apt to be rather a hurried one, and when the appetite is flagging, this most necessary meal in the whole day is not what it ought to be to sustain a man till the luncheon or dinner hour. A great factor to any meal, especially breakfast, is a daintily laid table. People who are most particular about the arrangement of a dinner table are apt to think anything will do for breakfast. A daintily laid breakfast table and well cooked and nicely served food are appetisers in themselves. However plain the fare, let the tablecloth be spotless, the china and silver well polished, and everything at its brightest. Have a few flowers on the table if possible, if not, a palm or fern in a pretty pot. Butter looks pretty when made up into little balls placed in a glass dish, and garnished with parsley or watercress, and with a pair of butter "hands," which cost sixpence, many pretty shapes in butter can be fashioned. Eggs and hot rolls should be served in a folded serviette. Cold dishes with a garnish of parsley. This is really not an extravagance, even if it has to be purchased, for a pennyworth will last a week if it is placed in water when the dish is removed from the table. Let the knives be bright, a stained knife is abomination at any time. At this season of the year a small dish of radishes or watercress looks pretty on a table, and is generally very much appreciated. It is in these small details that a dainty woman makes her home an attractive place to her mankind.

STRAWBERRY PUDDING.

Take a teacupful of self-raising flour, add to it a good pinch of salt and two ounces of very finely minced beef suet; add also a teacupful of strawberry jam, the well beaten yolks of two eggs, a smaller teacupful of milk, and half an ounce of

finely-chopped candied peel. Mix very thoroughly and finally add the whites of the eggs, whisked to a firm froth. Fill a well buttered mould with the mixture, and steam for two hours and a half; serve with jam sauce poured over and around. For the sauce take half a cupful of jam, and add to it a tablespoonful of cooking brandy and two tablespoonfuls of water; place in a small stewpan and bring to the boil; then rub through a heated gravy strainer over the pudding. Note—This sweet may be made with either apricot, greengage, raspberry, or black currant jam, and will be found equally good.

To dress a crab cold, select a good, heavy boiled one, with the joints of the legs stiff. Break off the legs and claws, crack them, take out the meat and cut it up small, open the body of the crab and take out the inside, put the meat from the claws with it, carefully removing every particle of shell, and mix the whole well together with some mustard and vinegar. Season it well with pepper, salt, and a little cayenne. Clean the back shell and fill it with the meat. Garnish it with sprigs of parsley and some of the legs placed round. The top of the shell may also be garnished with lobster spawn (coral), finely chopped, hard boiled eggs, or some of the meat from the claws.

ROE SAUCE FOR FISH.

To make roe sauce, wash the roes, throw them into a kettle of boiling water and allow them to simmer for twenty minutes; drain, put them in a bowl, and with a silver fork remove carefully all membrane; add a quarter of a pound of butter, and heat over a pan of hot water. When thoroughly hot add a gill of cream or milk, a level teaspoonful of salt, ten drops of onion juice, a quarter of a teaspoonful of mace, and serve in a sauce-boat.

TEMPTING DISHES.

A tempting dish for a poor appetite may be prepared with six or eight sardines, half an ounce of butter, onions, a little white sauce, an ounce of grated Parmesan cheese, an ounce of anchovy butter, toasted bread, breadcrumbs, seasoning. Trim off the tails of the sardines, peel and chop the onions finely, put them in a small saucepan with enough water to cover them; boil up quickly,

strain, add the butter, and cook for a few minutes; add the sauce and cheese. Cut the toast into pieces a little larger than the sardines, spread with anchovy butter, place a sardine on each piece of toast, spread thickly with the sauce, season with pepper and cayenne; sprinkle over with some breadcrumbs, put in a hot oven for a few minutes till warm through. Serve very hot.

COCOANUT CUSTARD PUDDING.

Boil 3 cups milk with 1 cup sugar; dissolve 2 tablespoons corn starch in 1 cup cold milk and add it to the milk; continue the boiling for a few moments and remove from the fire. Beat up the yolks of 4 eggs, and after the custard has cooled a little, add them to it; when cold, beat the whites to a stiff froth and stir them into the custard. Butter a pudding dish and put in half the custard and a layer of macaroons, then a layer of cocoanut on top, into which 2 tablespoon sugar have been mixed. Bake in oven to a delicate brown and serve cold.

Keep all preserves, jellies, and tinned fruits in a cold, dark, and dry place.

THE STOCK POT.

Partly owing to careless handling, and partly to the advance of the culinary art, the once highly esteemed stock-pot has lately been somewhat discredited. And when one thinks of how, in the hands of the very plain cook, it became simply a kind of liquefied dustbin, one ceases to wonder that the disgusted and despairing mistress relegated it, and all its contents, to the limbo of disuse.

At the same time, when properly attended to, it is a most valuable adjunct to the kitchen requisites, and the means of saving many things that would, without its aid, go into the catalogue of unconsidered trifles, and would certainly find their destination in the hog's trough. The first thing to be attended to is to see that nothing be put in but what is good and fresh, that the pot be kept at the simmer all the time, and that when all the goodness is extracted from the ingredients the liquid be strained and put aside to cool. On no account must it be left standing in a half heat, as then souring will certainly take place, particularly if any vegetable matter has been added to

the contents. After what is called in culinary language the first stock is drawn from the bones, &c., a very fair second stock may be got from them, but of course this has less flavour, and is simply a gelatinous extract, useful enough in its place, but wanting in most of the constituents of good stock.

When the stock pot is called into use it should be put on in the early morning, with a mixture of raw and any cooked bones that may have accumulated, with any trimmings, provided that the latter are perfectly sweet and fresh; also a few pounds of hough of beef, well washed in two or three waters. This, if not boiled to rags, for which there is no necessity, as the stock will be clearer if simmered slowly, will come in handy for kitchen or family dinner. Cover the whole with cold water in due proportion—about 3 quarts probably—and bring all to the boil. The pan or pot should be of such a size that the water reaches to within an inch of the top, as this greatly facilitates the skimming, a most important part of the process. Salt the whole to taste, always remembering that salt can be added, but never taken out. When the pot has been slowly brought to the boil, throw in a dash of cold water, which helps the scum to rise, and continue skimming as long as it does so. You have now unflavoured stock, and to bring it to perfection some vegetables may be added: a middle-sized carrot, a large leek (onion is supposed to cloud the stock), a small turnip, and a bit of celery, or a leaf or two of the celery plant, which comes in handy at a season when celery is not. These should all be cut up and put in a small net, so that they can be lifted out when cooked enough, as otherwise they would absorb the flavour of the meat, and make the stock all the poorer. After the vegetables are added, put on the lid and let the pot come again to the boil, then draw it to the side of the stove, and let the whole simmer for four or five hours; then strain, put aside to cool, and remove the fat. Wash out the pot and put it away till wanted again. On no account leave it standing on the stove with the remains of the original contents, as used to be the fashion under the mistaken idea that the longer it stood the more goodness was got out of it. If the bones are to be used again, put them on afresh in a clean pan with some fresh cold water. As already mentioned, a gelatinous extract can be got from them, which may be enriched by some of the ready-made consommés

now in use, or used as the foundation for purées or any thickened soups. When the bones look white and full of small holes, then, but not till then, the experienced cook knows there is nothing more to be got from them, and instead of stocking the pot, they may be used to stoke the kitchen fire.

A stock-pot to be really useful should be treated with all due circumspection. Not fat, no bread, nor any of the softer kinds of vegetables that break down in the boiling should go into it. These scraps can and should all be utilised, but not in the stock pot. Young cooks cannot be too strongly impressed with the idea that the utmost cleanliness and particularity are absolutely necessary in its use, or both it and its contents will get into bad odour in more ways than one. (1)

The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

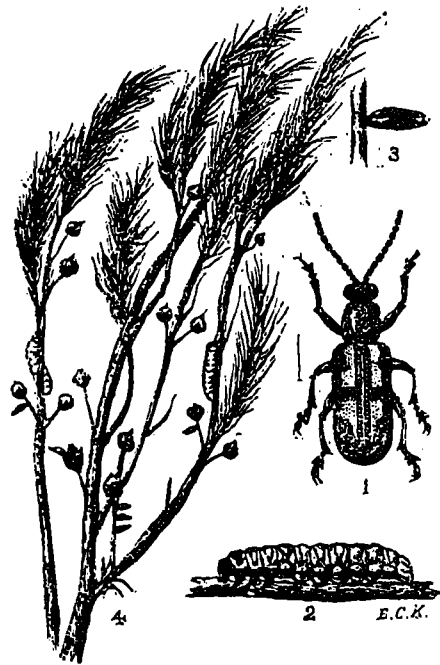
INSECTS INJURIOUS TO VEGETATION.

(Continued).

This beetle often does much harm to asparagus, especially in beds which have been established from one to three years, by eating and disfiguring the heads as they are formed, and later on by attacking the stems and seeds, of which it is particularly fond, both in the beetle and larval stages. In the beetle stage the insects bite the tender asparagus head while these are yet underground, or only just showing above the ground, making patches upon them, and spoiling their appearance for market. Later on the beetles eat the feathery shoots of the plants, as well as the large round seeds, to which they are very partial. A beetle will eat a considerable quantity of the tender shoots in the course of a day. The larvæ are most voracious and will leave the long stems of the plants completely bare of foliage when they are badly infested.

It was first noticed in Astoria, in Long Island, U. S. A., in 1858 and in four years the beetle had spread throughout the extensive asparagus beds of Long Island. It was well known previously

THE ASPARAGUS BEETLE (*Crioceris Asparagi*).



1. Beetle, line showing natural size; 2. Larva, magnified; 3. Egg, much magnified; 4. Asparagus plant, with larvæ, natural size.

in many parts of Europe, especially in France, were it was very detrimental to asparagus culture.

The beetle is quite curious (Fig. 1); its body is shiny black, with a blueish tinge

Upon each wing-case there is a row of yellow spots or patches which with the transverse bar form the figure of a cross, hence the French call it "Porte-Croix," the "Cross bearer."

Eggs are laid by the beetles early in the spring and are glued by their ends to the plants, usually in rows of three to five. Grubs or larvæ come forth in about 8 to 10 days, and immediately begin to feed upon the asparagus. The larval or grub state lasts fourteen days, or thereabout, and then the grubs fall to the earth, form a thin cocoon just under the surface and are transformed into the perfect beetle; brood succeeding brood until the middle of October. The larva (Fig. 2) is about one-fifth of an inch length, dark, olive green in colour. It is thick, fleshy, and shiny with three pairs of shiny black legs, and the extremity is prolonged to enable the insect to climb up and cling to the stems of the asparagus. The beetles which continue the species, survive the winter in dry, sheltered places, as beneath old

(1) A very good and very useful article, by A. L. O. S., i. e., "A Lady of Scotland." *Ed.*

bark, in crevices of wood, and under boards. The transformation occurs early in the spring as they attack the asparagus plants immediately they begin to shoot, and this is after the first few warm days.

Methods of prevention and remedies.

In the first stages of this attack, that is, when the beetles are underground and feeding upon the juicy parts of the heads of the asparagus as they are formed, it is difficult to deal with them, though at this period they do considerable harm by making the heads brown and spotty. It is desirable to leave a few heads uncut in every bed where there is infestation as traps for the beetles, which get up the feathery shoots and branches during the day for pairing and the deposition of eggs. In the course of eight or nine days these plants should be brushed off close to the ground, and burnt. Another set of heads should be allowed to run to shoots, which should also be brushed off and burnt.

Beds of young asparagus plants are most liable to this attack in the first year or two, when only the strongest heads are cut for market, as the beetles like the succulent shoots of young plants. It would seriously injure the stocks in newly-made infested beds to cut off their shoots. In such cases, it would be better to beat the feathery shoots smartly with sticks, and to tread heavily round the plants to crush the larvæ. Very finely powdered lime dusted on infested plants would also be efficacious, as it would adhere to the slimy bodies of the larvæ. The lime should be applied as soon as the larvæ are noticed, and the application repeated at intervals. In small beds, and in beds of young plants, hand-picking, both of beetles and larvæ, would be useful, but this operation is too costly where asparagus is largely cultivated. In extensive beds the remedies to be employed are liming and beating infested plants, and trapping as indicated above, by letting some heads grow into plants and brushing them off and burning them. Syringing can be adopted in gardens. Where asparagus is grown upon a large scale this process is more difficult, as the plants are not set in rows, but it may be effected by means of knapsack spraying machines. Kerosene emulsion consisting of two gallons of kerosene oil and half a pound of soft soap dissolved in a gallon of soft water, may be used for spraying purposes. The soap should be boiled, and while boiling the ke-

rosene should be poured into it and churned up with the soap until it is thoroughly incorporated. The mixture should then be diluted with fifteen to twenty gallons of water.

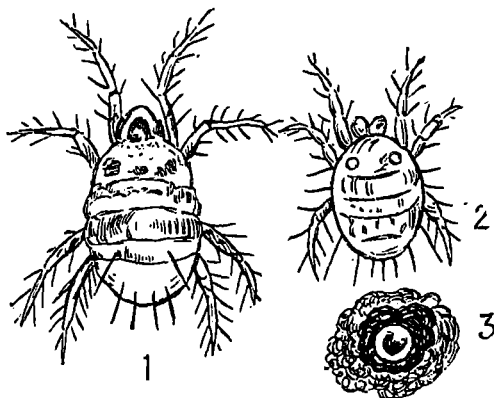
Paris green is also a valuable remedy against these and other insects which feed upon foliage. It may be used at the rate of one pound of Paris green to 200 gallons of water. It is better to put one pound of fresh lime with the Paris green. This mixture can also be put on with a knapsack machine. As this is poisonous, it should not be used till the asparagus has been all cut.

Spraying should be done before the foliage has become thick and strong. The operation should be repeated to be effective against both beetles and grubs.

It would be well to examine the roots of asparagus obtained for making new beds as the insects may be conveyed in these and the infestation be thus extended.

THE RED SPIDER OR SPINNING MITE.

(*Tetranychus telarius*, var. *humuli*?)



1. Full-grown mite. 2. Immature mite. 3. Egg.

All much magnified.

There are several varieties of this troublesome pest differing chiefly in color; the one under consideration infests the hop and in some seasons, when there is but little rainfall are very destructive, causing the leaves to fall off and the blossoms never to develop into cones or seed. Upon the under surface of the leaves thick webs are spread under which the mites are at work actively sucking the juices. All sorts and conditions are there, varying in size and differing in colour. The eggs which are perfectly globular are very curiously suspended by means of fine threads between midribs of the leaves stretched across them.

The life history of the red spider is very interesting.

The spinning mite of the hop plant passes the winter in the perfect state under stones and clods, in the bark of trees, and in the clefts and under the dried rind of hop poles. It is not noticed, at all events in numbers or as actively injurious, unless there is at least normal summer-heat, and it only multiplies in a dangerous degree when the day and night temperature are abnormally high. In such circumstances the increase in its numbers and its destructive influence are remarkable. Eggs are abundantly laid and, as above described, fixed in position by threads. The comparatively large and round egg is pellucid white at first and finally becomes slightly dark-coloured. The mites emerge from the eggs in five or six days, and at once begin to suck up the juices of the leaves. At first they are pale greenish-yellow in colour, with dark patches on both sides of the body; they become more tinged with yellow later, and some very light brown specimens have been found, but in no case have they been seen of a distinctly red colour.

In the earlier stages of their existence the mites have only three pairs of legs, but the full grown insect has four pairs. There are two stiff hairs upon each joint of the legs, and the claws are furnished with long, stiff hairs, upon the ends of which, or upon some of them, are little round balls, or pads, supposed, "to be an essential part of the spinning apparatus." The head is provided with a stout pair of mandibles with hooked ends for biting into the tissues of the leaf, and the mouth has a sucking apparatus which is inserted into the tissues. Very far behind the head are the red eyes. On the under side of the mite, towards the end of the abdomen, there is a "conical nipple," "from which the threads of the web are drawn up and guided by the motions of the mite and by the action of the minute claws and hairs of the legs." Mites left on the leaves upon the plant retire into the cracks and under the rind of the poles; they have great power of locomotion, and travel very rapidly quite independently of their webs.

Modes of prevention and remedies.

It is most difficult, and it may be said almost impossible, to prevent these spinning mites from getting on the bine and leaves. They are most agile in movement, and travel up the bine rapidly.

Plants on wire and string seem equally liable to attacks, as the mites crawl the bines. The application of caustic substances close round the hill is ineffectual, as the mites are so tiny that they would not be affected by such material as lime, gas-lime, or kainit unless reduced to the very finest powder. It would also be impossible to get at the mites in the cracks of the poles and posts for wire work. When a drought commences in June and there is a probability of its continuance, it would be useful to immediately syringe hop plants upon which the mites are seen with cold water, or with water, soft soap, and sulphide of potassium, before the webs are made or before they are plentiful and thick. The syringing must be heavy and frequent, mere spraying will not suffice, as it is well known that the ordinary spraying with quassia and soft soap has a very slight influence upon them. Hop plants that have been sprayed three or four times for aphid-blight have yet remained badly infested by these mites. To be effectual, syringing must be done early, vigorously, abundantly, and with hand machines. When the webs are well established, even the most drastic syringing is often unsuccessful.

Sulphuring, that is applying "flowers of sulphur" by means of a horse machine which blows the fine particles on and under every part of the hop plants, is supposed by some to have a prejudicial effect on the mites, but it is believed that this is of little if any benefit. Hop plants are sulphured almost in the ordinary course of cultivation, but the mites are not hindered by this in the least degree. Leaves have been examined upon which the webs of the mites were thickly covered with particles of sulphur, and the mites in the webs immediately in contact with the sulphur were lively and unconcerned. Paraffin emulsion has been of considerable effect when used in the early stages of the attack. This is made by mixing 6 lbs. of soft soap and 7 gallons of paraffin with 100 gallons of water and poured into a tub containing the paraffin, the whole being churned up with a force pump. The mixture is afterwards diluted to the proper strength. It is important that the water used for this emulsion should be soft; it can be made soft by adding soda or borax.

Sulphide of potassium, known commonly as liver of sulphur, the foundation of several washes for insects, has been used with considerable ad-

vantage. It is readily soluble in cold water, but it must not be allowed to stand, as it loses strength rapidly. It may be applied in the proper proportion of 2½ lbs. to 100 gallons of water; a little soft soap mixed with it tends to keep it upon the leaves.

Liver of sulphur is also a remedy. It is so soluble that it might be put in with some soft soap and quasia chips or any other insecticides.

GERMINATION.

Germination is an operation full of the most intense interest to the student of vegetable physiology, and an intelligent knowledge of it is essential in the successful practice of horticulture.

The term germination was formerly used to indicate the evolution of one growing part of a tree or plant from another, as a twig or shoot, from an embryo bud; from the multiplication of bulbs; from the buds or eyes of tubers, as the potato; or reproduction, or rather perpetuation of its kind by means of layers, grafts, or cuttings. It is also employed by some to signify every kind of vegetable propagation. But by modern scientific usage it now bears only a more restricted meaning, and is only applied in relation to the "ovary" a term derived from the latin *ovum*, an egg, which is used to express, that part of the pistil, or central organ of the flower containing the rudimentary seeds or ovules in all seed bearing plants, and which are the true germens. In the non-seed-bearing species these germens are situated on different parts of the plant; the germens of ferns are called sporules, and are borne on the backs of the fronds or leaves, those of the mosses are found in little capsules or urns, and those of the lichens, sea weeds, and fungi, of which latter the mushroom is a familiar type, are held in tubes or cells within their substance; in some of the fungi these germens are so minute as to be only discernable by the aid of a powerful microscope, and so numerous that their number cannot be expressed by any intelligible arithmetic; and yet each one is perfect in itself, and the embryo of a new individual of the same species. These minute particles are careering through space with every current of air, attacking themselves to every place, and availing themselves of every circumstance favourable to their germination; reproduction from them is now well understood and completely up-

sets the old idea of equivocal or spontaneous generation.

A seed, when placed in the condition of moisture and temperature necessary to its development, commences to form the different organs of the plant; it cannot to be said to be beginning a new existence, because its vital germ was already within it, but to be perpetuating its species by entering a new phase of life, and reproducing a perfect set of organs similar to the parent that produced it. What it termed "generation" in animals may be likened to germination in plants.

The birth of organized beings, whether in the animal or vegetable kingdoms, is the crowning mystery of nature and of organic arrangement.

Organic bodies *develop*, but never *form* themselves; on the contrary, in all those cases where they can be traced to their source, they have been found to derive their origin from a being of similar structure which had itself been previously developed, that is to say, a "parent."

The offspring of plant or animal is termed a germ as long as it participates in the life of the parent, and before it has any independent existence. In various species there is a difference in this respect, in some the germ is attached to the parent until it commences its independent existence; in others, such as birds, insects, and animals which lay eggs, and in plants which bear seeds, the germ is contained in these eggs or seeds, but remains in a suspended state of animation until exposed to the proper condition of temperature to cause germination.

The ancients had an idea that certain organized creatures could be produced without parent and Virgil attempts to

..... Explain
The great discovery of the Arcadian Swain,
How he creates, and can at will restore,
Swarms, from the slaughtered bulls' corrupted gore

Some people cannot, even, now, be convinced that the Hair worm (*Gordius aquaticus*) is not formed, artificially, by placing a horse hair, and allowing it to remain for sometime, in water.

Kirchner who lived in the seventeenth century gave a receipt for *making snakes*!

It is very interesting to watch how a seed, when placed in the right conditions to induce germination, sends down first a radicle to form a root, and then a plumule to form a stem and leaves, feeding both with the vegetable albumen stored up within it for that purpose. So power-

ful is the principle of life, that a seedling, accidentally deprived of its radicle, will sometimes form a second one, but in such cases the plants are weak and never attain to their full vigor, but remain small and delicate.

GEO MOORE.

(To be continued).

INSPECTION AND BRANDING OF APPLES.

Some discussion took place last week at Ottawa upon the bill introduced by the Hon. Mr. Fisher in regard to the inspection and branding of apples. There was a wide difference of opinion expressed as to the effectiveness of such legislation, many claiming that the causes regarding inspection would be unworkable. There seems to be good ground for believing that the inspection of apples in barrels would be a very difficult matter to work out in actual practice. It would be practically impossible to inspect all apples when being packed, and the only way of carrying out the system of inspection proposed would be to have some inspector examine a certain number of barrels from each shipment at the port of shipment. But this would entail a lot of difficulty, and it is hard to see just how it is going to work out satisfactorily. We presume, however, that the Minister of Agriculture has the matter worked out in his own mind and will be able to arrange for a satisfactory inspection if required.

This inspection difficulty might be overcome by having Canadian Government officers located at Liverpool and one or two other points in Great Britain, where the bulk of Canadian apples are sold. Such officers could be called in to inspect and report upon shipments of apples in which fraudulent packing or grading has been found, and upon whose evidence the guilty parties might be brought to justice in Canada. A plan of this kind would necessitate the branding of the name and address of the packer of the apples on the outside of every barrel, but we think it would work out well and be the means of tracing out parties guilty of such fraudulent practices as have been only too common in this country for the past few years and which have brought our export apple trade into disrepute and dishonor to the name of Canada.

But whatever plan of inspection is adopted, or

even it there is to be no inspection, the name and address of the person who packed the apples should be branded on the outside of every barrel of apples sent out of Canada and, for that matter, upon every barrel of apples sold to the local trade as well. The apple trade of this country has got into bad repute through the action of certain dishonest individuals, and strong measures are needed in order to bring these parties to justice. Only a very small percentage of the men who grow apples pack them. This is done in 90 per cent of the cases by dealers, who make a business of buying up orchards in the fall and doing their own packing. These are the parties responsible for fraudulent packing, and if every packer were compelled to put his name and address on every barrel, it should not be difficult to trace the guilty parties and mete out punishment to them in keeping with the offense. Such punishment will, no doubt, be in the shape of a fine. All we have to say on this point is, let the fine be good and large, so that the guilty parties when found out may feel it. In certain recommendations made to the Government by the Ontario Fruit Growers' Association on this point a very small fine in our opinion was suggested in the way of punishment. The Minister of Agriculture would do well to make the fine large and effective.

THE EXPERIMENTAL FARM METHOD OF TREATING AN ORCHARD.

Editor *The Farming World* :

Under most circumstances I believe in clean culture in the orchard in spring and the early part of the summer ; seeding down to red clover or some other leguminous crop about the middle of July, and plowing under the clover early in the spring. By this method a cover crop is formed to hold the snow in winter and protect the roots of the trees from sudden changes of temperature. The crop, also, when plowed under, will add humus to the soil and supply a large quantity of nitrogen. I believe this system is the best one to adopt in the milder parts of Ontario, especially where droughts are liable to occur, or where the soil is naturally inclined to be dry. For the colder parts of Canada, and where the location of the orchard is such that there is no fear of the soil becoming too dry, a fruit grower should use his

own judgment as to whether it is desirable to cultivate his orchard or keep the soil covered with clover or sod. Where clover can be grown successfully I do not believe it is advisable at any time to have a thick sod in the orchard.

The method adopted at the Central Experimental Farm,—where the soil is a light sandy loam, which appears never to become dry, but the surface soil of which is easily moved by the wind—an almost continuous cover crop is kept. The clover is plowed under every two years, as red clover is a biennial and kills out at the end of that time, but is re-sown as soon as the land is prepared. Clover sown, say in the spring of 1900, will be cut a couple of times this year to keep weeds from going to seed, and in 1901 will be cut from four to five times, the crops being left on the surface of the ground to rot. By this system we believe we are getting better results than if the soil were kept cultivated as recommended above.

W. T. MACOUN.
Horticulturist.

Central Experimental Farm, Ottawa, Ont.

The Dairy.

COMPETITION OF DAIRY-PRODUCTS HELD AT MONTREAL, JULY 21st 1900.

List of winners of prizes.

1. H. Weston Parry, Compton Model-farm, 97 pts. ; silver-medal, first-class diploma and \$9.00 in cash.
2. H. Gareau, St-Télesphore (Soulanges), 95 pts. ; bronze-medal, second-class diploma and \$5.00 in cash.
3. L. J. Monat, St-Basile-le-Grand (Chambly), 94½ pts. ; bronze-medal, second-class diploma and \$4.00 in cash.
3. L. Morrison, East Hatley (Stanstead), 94½ pts. ; bronze-medal, second-class diploma and \$4.00 in cash.
4. J. H. Leclerc, St-Polycarpe (Soulanges), 94 pts. ; bronze-medal, second-class diploma and \$3.00 in cash.
4. J. B. Reed, Hatley (Stanstead), 94 pts. ; bronze-medal, second-class diploma and \$3.00 in cash.

The competition was held at Montreal, July 21st, at the Gould "Cold Storage."

The judges, for the butter, were Messrs. A. A. Ayer, Vaillancourt, and Leclair ; for cheese, Messrs. A. A. Ayer, Vaillancourt, and Plamondon.

Six exhibits of cheese and fourteen of butter were examined at this competition.

(From the French ; by the Editor).

SUMMER CARE OF MILK.

Milk cooled to 45° or 50° will not make such good cheese as milk cooled to 65° or 70° degrees.

Editor *The Farming World* :

In regard to cooling milk for cheesemaking immediately after milking to 45° or 50° to prevent the growth of injurious germ life in the milk as suggested in an article in *The Farming World* of July 10, I would say that I believe cooling the milk to such a low temperature will prevent the growth of germ life. I do not think, however, that milk cooled to 45 or 50 degrees will make as good cheese as milk cooled to, say, 65 or 70 degrees. For this reason, that it would require too much starter to get the proper amount of lactic acid in the milk before setting, and that in the process of making there is a greater loss of butter-fat in milk which has been chilled, also milk cooled to such a low temperature as 45 or 50 degrees would show very little flavor, and, at the same time, might have some of the very worst flavors after being heated to 86 degrees. This I think any cheesemaker knows. And I think to advocate a system of taking care of milk that would cover up bad flavors until the milk is in the vat would be a most foolish thing to do.

The article also says : "If every patron could be depended upon and had facilities for cooling his milk to below 50 degrees immediately after milking and keeping it in good condition over night, it would be the best plan for getting rid of germ life in the milk.

"Then by the use of a good amount (it would need a good amount) of pure culture in such milk the maker would get a perfect flavor in his cheese." I will not dispute with the writer as to flavor from such milk, but there are other things

about cheese besides flavor, and it is just possible he might find some trouble in getting a fancy texture. But I do know that if every patron could be depended upon and had facilities for scrating and cooling his milk to 65 or 70 degrees, I would run chances of making a very much finer cheese and with less trouble than from milk cooled to below 50 degrees. I do not think it necessary or advisable at any time to cool milk below 60 or 65 degrees, as milk cooled to 60 degrees will keep from Saturday night to Monday morning and be in good condition for cheese-making.

I am strongly of the opinion that the greatest trouble as to flavors is in the food and water the cows get, and unclean milking, into pails that are not properly washed and scalded, and milk cans in the same condition. No amount of cooling will produce a good flavor if done in such vessels. Let us have pure water for the cows to drink, clean milkers, clean pails, and clean cans to send to the factory, clean factories, clean makers, and our cheese will have clean flavors.

Sebringville, Ont, July 20, 1900.

GEO. H. BARR.

(NOTE.—We are glad indeed to have the views of so up-to-date a cheesemaker as Mr. Barr on this question of cooling milk. A part of his letter, however, seems somewhat contradictory. He states in one place that he believes the cooling of milk to a low temperature would prevent the growth of germ life, and later on states that it would be foolish to advocate a system of caring for milk (cooling to low temperature) that would cover up the bad flavor until the milk was in the vat. If the germs are prevented from growing at a low temperature, there should be no bad flavors to be covered up in the milk when in the vat at the factory.—EDITOR).

SUMMER CARE OF MILK.

Editor *The Farming World* :

Your editorial on the "Summer Care of Milk" I consider eminently timely, sound and practical.

The majority of cheesemakers will agree with the statement that whenever the milk is too ripe when it is received at the factory, or gets too ripe before it can be set, or if it works very fast, without having had a starter added, it would have been in better condition had it been kept at a

lower temperature. In my own experience in making cheese during two summers in South Carolina, I found it impossible, making once a day, to handle the night's milk during hot weather unless it had been cooled in water overnight. Milk dealers generally recognize the importance of cooling milk for domestic use, and my belief is that any treatment that makes the milk more acceptable to the consumer in the one case will prove of benefit to the consumer of milk in the form of cheese, and incidentally to the producer and manufacturer. During the present season we are told that the quality of our cheese has been superior to that of former years, and we shall not be very far astray if we ascribe the improved quality mainly to the cool weather that has prevailed, owing to which the milk was received in better condition at the factories.

It may be that our leading authorities hesitate to recommend the more universal adoption of the plan of cooling the night's milk to a low temperature on account of the fear of cleanliness and aeration being neglected. It is a deplorable fact that the ambition of many patrons of cheese factories in regard to the quality of the milk they furnish does not rise higher than to get it into the weightcan without its being rejected. If they used ice or cold water for cooling their milk they would find the low temperature such an excellent preservative that they would be apt to be careless in some other particulars, and the last state of their milk might be worse than the first.

Naturally the cooling of milk to lower temperatures necessitates the more extended use of starters. This in its turn demands increased skill on the part of the cheese makers and the proper facilities for perpetuating starters which latter very few factories possess. Where the cheese-maker has an educated sense of taste and smell, is fully aware of the possibilities and limitations of a starter for good or for evil, and has the knowledge and facilities for propagating one, he will be in a position to make finer cheese if the milk has been cooled, and reaches him free from germ life, whether this be in the form of the desirable lactic acid producing species, or those more troublesome forms which are the cause of gassy milk and bad flavors in the cheese.

J. W. HART.

Dairy school, Kingston, July 17, 1900

CHEESE.

That the Canadian cheese manufacturer is capable of producing a thoroughly good article has long been an established fact; and he has not failed in time past to secure a full share of the world's custom for his specialty. In proof of this, if any be necessary, it is sufficient to point to the fact that Canada supplies cheese to the British market far in excess of what is imported from all other sources, whether foreign or colonial, combined. In Greater Britain, she is, with the comparatively insignificant exception of New Zealand, practically without a rival. But in connection with the exception referred to there is a somewhat humiliating fact to be noticed. Experts in cheese tell us that the Canadian product before exportation is generally equal, and for the most part superior, to that of New Zealand before shipment; yet, strange to say, the latter fetches an average price on the London market denoting a substantial difference in its favor over the Canadian article. Thus in the London *Standard* of recent date occurs the following quotation: "A sustained demand has been experienced for new qualities of Canadian and United States cheese, and a fair amount of business has been concluded at fifty two shillings to fifty four shillings for the finest. New Zealand fifty-eight shillings to sixty shillings."

This difference in value is attributed locally to insufficient ventilation while on board ship, where the cheese generates heat and spoils in flavor, and to injury and deterioration suffered by the Canadian cheese on the outward voyage, due to the smashing of the cheese boxes, which are said to be of a character and shape materially unfitted for safe transport of the contents. Surely these are defects which call for immediate remedy. The New Zealand cheese trade is yet in its infancy; it will not long be so, and its rivalry may be expected to be more pronounced year by year. It is possible that the very fact of the distance of sixteen thousand miles inspires the New Zealand packers to greater care. Being near, we slight the task, failing to realize that good ventilation and packing is as much needed for a short voyage as a long one. It is said that much of the mischief of the packing is due to the shape of the box used, and that to adopt the square-shaped New Zealand box would be prejudicial to the factories at present engaged in turning out those of a round shape, and would

necessitate a considerable change in their manufacturing plant. If that be true it is not sufficient excuse. No loss could be so great as to lose the lead in the trade. One thing is plainly implied by the above quotation from the *Standard*—the British consumer has no use for inferior produce.

Witness.

CHEDDAR CHEESE

(Continued).

CURD OBTAINED FROM ONE GALLON OF MILK.—
AVERAGE FOR EIGHT YEARS.

April.....	·92 lbs.
May.....	·97 lbs.
June.....	·96 lbs.
July.....	·99 lbs.
August....	1·03 lbs.
September.....	1·08 lbs.
October.....	1·15 lbs.

A SYSTEMATIC DESCRIPTION OF THE RECORDED
OBSERVATIONS.

Concerning Acidity Determinations.—Straining Milk.—Rennet.—The Effect of a High Scald (Spring Cheeses).—Temperature of the Curd when Vatted.—Moisture in Curd.—The Composition of Milk.—The Fat of Milk.—The Ultimate Distribution of the Constituents of the Milk.—The Time which is required to Make a Cheese.—The Rining of Curd.—The Composition of Ripe Cheeses.—Tables: Monthly Averages of some Results of Observations.

Concerning Acidity Determinations.

The (apparent) Acidity of Fresh Drawn Milk.—It is a somewhat remarkable fact that milk, the moment that it is drawn from the cow, shows a high proportion of acid. This acidity certainly is not lactic acid, and I have proved, by experiment, that it is not carbonic acid. Milk is known to contain acid salts, and we must assume that these explain to a certain extent the results obtained.

This acidity of the milk as it came from the cow varied at different sites, i.e., each year, and I was therefore led to believe that it was associated with the soil or perhaps with the food, which is nearly the same thing, as the cattle would for the most part be feeding on the pastures during the cheese making season. But what was more striking was the fact that at each site the acidity of the milk varied more or less from month to month. When we come to average the acidity for the seven years of the observations, it will be seen that the

fluctuations almost disappear, and we obtain a nearly constant acidity for each month, equal to 0.19% of lactic acid. It seldom rises above 0.22, nor should it fall below 0.17 without inquiry into the cause, as will be explained hereafter. It was not until 1897 that any abnormal condition of the milk as regards acidity arose. Then the acidity of the milk was so low that it became necessary to investigate the cause.

Milk of Abnormal Acidity.—The cause of the abnormal acidity of the milk in 1897 was discovered in 1898. As previously pointed out on p. 72, certain cows were discovered at Long Ashton yielding abnormal milk. Upon testing the acidity of this milk, the results obtained were for Cherry, .14 per cent., and for Ayrshire Horns .13 per cent. These results, it will be seen, are quite exceptional—the average of the herd being .19—and were equally unexpected. It was, therefore, determined to follow up this line of inquiry, and, side by side with the complete analyses of the milk, estimations were subsequently made of the acidity of each cow's milk. It was then discovered that the acidity of the milk varied generally in proportion to the casein in the milk. This is well shown by the following table, which gives not only the average acidity of the milk of the four exceptional cows, but also the acidity of the other milks, taking the averages according to the proportion of casein they contain.

Milk containing.—	Average acidity
Under 2 per cent. casein14
Over 2 and under 2.5 per cent. casein....	.20
Over 2.5 and under 3 per cent. casein....	.21
Over 3 per cent. casein23

As it is generally found that the proportion of solids in the milk is in direct relation to the proportion of casein, we may roughly express these results by saying that the greater the proportion of solids in the milk, the higher is the natural acidity of that milk. This probably accounts for the fact that the acidity of the milk is generally higher in the later part of the year, when the milk is richer, than in the spring. It appears to me that these results justify the conclusion that the estimation of the acidity of each cow's milk would give the cheese-maker a rough (though not absolutely accurate) guide to the proportion of casein and solids in the milk, and as to its suitability for cheese-making. Any cow yielding milk of very low acidity should be regarded with suspicion by the cheese-maker.

The Effect of Milk of Abnormal Acidity.—The influence of the abnormal milk of the four cows upon the whole of the milk and the cheese produced therefrom was remarkable; but it can only be appreciated when studied in conjunction with the effect of keeping it out of the mixed milk.

In the first place, this milk, owing to its low acidity and small proportion of casein, diminished the percentage of both acid and casein in the mixed milk.

The Effect of the Low Acidity.—Diminishing the percentage of acid in the milk necessitates a lower percentage of acid being obtained in the curd before grinding, for the lower the percentage of acid in the milk as drawn from the cows the lower must be the acidity obtained in the liquid from press. It will subsequently be shown that the acidity of the liquid from press, for a fairly quick ripening cheese, should be five times that of the evening's milk when brought into the dairy, and with ordinary milk this can easily be obtained. But when dealing with abnormal milk a difficulty arises due to the want of casein.

The Effect of the Low Casein.—Owing to the deficiency of the milk in casein, the curd will be wanting in contractile power, so that by the time sufficient acid has been produced in the curd for it to be ground, it will not be sufficiently dry—in other words, it will not have expressed sufficient whey. The practical difficulty which the cheese-maker has to meet is to decide whether to put away the curd when sufficient acidity is developed, although it would not be properly dry, and the cheese would consequently ripen rapidly—for a wet curd always ripens more rapidly than a dry curd—or to obtain the requisite dryness with an excess of acidity, which would also make the cheeses ripen rapidly and further introduce the risk of producing an acid cheese. Miss Cannon decided to adopt the former system, and in my opinion was justified in doing so. Yet it necessarily resulted in certain peculiarities which will be referred to subsequently. (See *Moisture in Curd.*)

(To be continued).



DAIRY INDUSTRY IN DANGER***Uncleanliness the cause—Better sanitary conditions necessary***

As the warm weather approaches the unsanitary conditions around cheese factories and creameries begin to show themselves. One of the persistent and most frequent sources of such conditions is the whey tank and its surroundings. If neglected and allowed to get out of gear and to become filthy through uncleanliness it becomes a breeding ground for all kinds of injurious germ life and a menace not only to the quality of the dairy products turned out, but also to the health of the people living in the locality. If the whey tank shows neglect and carelessness on the part of those responsible for its being kept in good shape, it is safe to conclude that the sanitary conditions of the factory itself are not of the very best. The whey tank then may be taken as a sort of barometer, which shows the extent to which cleanliness is observed by the maker in all his work.

That urgent and effective measures are needed along this line is only too true. Only the other day Mr. R. M. Ballantyne, Stratford, Ont., one of the largest cheese exporters in western Ontario, and who has recently returned from a visit to Great Britain, stated that there is a tremendous prejudice there against cheese from the district west of Toronto. On this matter he is credited in one of our local exchanges with the following statement :

“The chippy or dry cheese and onion flavored cheese have been so numerous that the name of the cheese coming from this district stinks in the nostrils. And the reason for this is, that the makers are not particular enough as to their surroundings. The ill flavored cheese comes from dirty factories and dirty farmers. You have been in the factories where the maker is wearing an unclean apron, the factory itself has a dirty appearance, and no heed is paid to cleanliness in taking in and preparing the milk. All this has had a bad effect on the cheese from this part of the province, and the factorymen can never hope to make cheese that will be satisfactory to the English dealer until they learn the lesson of cleanliness. Dirty surroundings are responsible for it all.”

The above is a pretty strong indictment and, coming as it does, from one whose interests are

identical with those of the dairy industry of the western part of this province, should serve to stir up makers and others to do better work. Conditions as to cleanliness and filthy surroundings can be brought under complete control if proper and persistent methods are adopted, and there is no excuse whatever for such a state of affairs as is reported to exist in the above quotation. If the floors, whey tank, drainage, etc., are out of repair and not in condition to be kept clean and sweet, the maker should insist upon them being put in good condition at once. If the factory and surroundings are in good shape, and filthy and dirty surroundings are due to the maker's neglect, then he should be made to remedy matters at once or to use an up-to-date phrase, “quit the job.” There is no room for half-way measures or for dilly-dallying with this matter. A virulent disease requires urgent and strong remedies. A dangerous disease seems to have found its way into the dairy industry of one-half of this province and strong and effective remedies are needed, and the sooner they are applied the better. It is hardly necessary for us to state what these remedies are. Every maker and every patron knows or should know what they are. They may be summed up in the one word—cleanliness; cleanliness applied by the patron in caring for the milk and cleanliness applied by the maker in keeping himself, his factory and its surroundings in the best possible sanitary condition. With this remedy properly applied there is good reason to believe that Western Ontario will soon acquire its former good name and reputation for fine-flavored cheese.

Farming.

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

SMALL FLOCKS ARE BEST.

The poultryman who keeps a small flock of poultry in a village yard is very apt to think that he could do better if he were on a farm, where he could have larger buildings and not be obliged to confine his fowls in yards.

We have tried both ways and we think now that if we had a large farm, every hen and chicken should be enclosed in a yard with a wire fence

round it, so that they could not get out. And the yard should not be so large that we could not easily look over it every day, to see that there were no sick hens, and that none were laying outside of the house. We might have two yards for each flock if we had a space for them; and if we had no other business to attend to we might have several flocks; but they should be kept separate every day in the year. Nor should we want more than 25 or 30 hens or chickens in one flock, which would not require a very large house or yard. We know that this would make a larger outlay necessary for the same number, but we believe extra profits would repay that, and it would have the advantage that if roup or other diseases began in one flock it would not spread to others, as it does where there are several flocks in one long house.

Another advantage of the small house and small flock system is that he may begin in a small way and increase every year, as his income from them would warrant and his experience demonstrated his ability to handle a larger number.

This is the way most of our successful raisers of poultry have begun and grown up, while we have known some to begin on a large scale and come out very small.

POULTRY PARAGRAPHS.

The comb of a fowl is an index of its general health. When the comb is bright red, it is a sure sign of a healthy fowl and when disorders arise, the comb becomes dark. Watch the combs and when they change from red in color it indicates a disorder of some kind and the fowl or fowls should be removed from the well ones and be properly treated and cured or be-headed.

Many fanciers do not place so much value on chaff or short straw as they should, I firmly believe. It will help to keep the houses clean as well as in busying the fowls thus keeping them out of mischief and giving them exercise. Houses that are strewn with straw are easily cleaned as the filth is matted in layers that are lifted easily with a fork. I have seen several hen houses within the last year where the fowls were standing on the cold damp ground. There should have been at least six or eight inches of chaff or straw

scattered over the ground or floor of every hen house during the winter and I am sure poultrymen do not half appreciate the value of chaff or straw in their hen houses judging from the meagre use of it in their hen houses during the last winter. Now be sure and have a lot of straw and chaff stored away during the season in the barn or some other convenient place so it can be easily got at to use in the winter of the next year.

See that your breeders are healthy, good in size, vigorous, as near the standard requirements as possible and your best layers.

Keep the early pullets hatched this spring and dispose of the old hens, that have seen their best days.

The hen that is busy, moving about all the time, and scratching here and there, is one of your good layers, you will soon know her and tell her if you will watch her a little.

Keep the water fountains filled with fresh water. Do not let them drink from filthy pools. See that the yard is well and properly drained.

Have good shade for fowls and chicks, they need the sun too. Have both for your birds and they will choose for themselves which ever they need.

Don't begin the poultry business with five or six varieties, or even two or three. One is better, select the one that suits your surroundings and fancy best and stick to it until you are sure that a change is for the best. Have the stick to it ativeness or qualities but do not breed any variety that is not unqualifiedly choice.

It is said by many that out-door work is very beneficial to the physical and mental health of women. I would suggest that feeding and caring for chickens would just fill the bill, but do not keep common scrub chickens. Get some pure-bred fowls, you will like them better and take more interest in raising them. If you want to

make eggs a specialty and live where the thermometer goes below zero in the winter buy Rose Comb White Leghorns.

There is a great difference between chicks that have range and those confined in close quarters. Exercise stirs up the blood, gives them life and vigor and keeps them healthy. The growing chicks need exercise, they will develop into healthy full sized fowls. Let them run in the pasture or field where they can get insects and grass and let them scratch and hunt for the greater part of their living. Chicks that are pampered too much never do so well. I do not mean by the above that you are to let your chicks hunt and dig for themselves on some barren place where nothing grows or insect lives for them to pick up.

There should never be such a thing as failure in the raising of poultry if properly attended to; when there is, look for it and stop the leak in time. One reason for it occurs sometimes in trying to do too much on the start. Another cause and the one that knocks the "props" from under many a beginner is starting out and trying to do business with poor and inferior stock. Another is to attempt to raise and breed a dozen varieties at one time. If you will conduct the business in a sensible and practical way there will be few failures in the poultry business.

The more vigorous the bird the greater the chance that its character will be impressed upon its descendants, but there is no rule that will hold good universally in breeding for there are many elements that help to decide the matter and some of them it is impossible to foresee. Many farmers that are good farmers in other respects, are careless, negligent and indifferent, in regard to their poultry. Better stir yourselves, build a new and better poultry house and help the good wife to look after the poultry. It will pay as well for the money invested as any other branch of the business of the farm.



Live-Stock.

AUCTION SALES OF THOROUGHBRED STOCK.

(Ottawa Journal.)

The announcement made some time ago by the Dominion government of its intention to hold an auction sale of thoroughbred live stock next winter, somewhere in this part of the country, will be hailed with much satisfaction by all who are desirous of improving the quality of our local farm stock.

In undertaking to establish an annual sale of this nature the government is showing considerable courage, as the difficulties in the way are many and of a nature not readily to be overcome. The fact that similar sales have been tried again and again by private individuals and public associations and have almost invariably ended in failures, is one of the strongest arguments that is being advanced to prove the weakness of the new scheme. That it does prove it, is not admitted by the farmers and stockmen who have made themselves acquainted with the details of the proposed movement. The failure of these attempted sales has almost always been due to the fact that the confidence of the people was never gained. It was generally believed, and not without reason, that only an inferior class of animals were offered at many of these sales, stock such as the owners had been unable to dispose of by private sale owing to their indifferent quality.

Great care will therefore have to be taken with the first government sales held to see that only first class animals are offered for auction. Only in this way will the confidence of the buyers be secured and not until that has been gained will the sales prove a success.

The idea of establishing such sales is a good one. Scattered throughout the country are scores of farmers who annually produce from one or four first class breeding males, and perhaps a few females. Many of these men understand the principles of stock-breeding exceedingly well and have from time to time produced prize winning animals. The great difficulty they have all met with however has been an inability to promptly sell their surplus stock annually. In some

years they have been able to sell, in other years they have had to keep a number of animals longer than their means warranted. Larger breeders have suffered from the same cause, sometimes most severely. The result has been that many capable men have given up the business, to the great disadvantage of the farmers and country generally. It is largely with the object of creating a permanent and reliable market for such breeders that the proposed sales are being organized. The plan outlined is co-operative advertising and co-operative selling, which is cheaper and more effective than similar work done by an individual. If these sales are to be established and maintained the best and most reliable breeders must patronize them, and year by year give them their loyal and hearty support. By wise and honorable management, the confidence of the public should be gained. The rank and file of the farmers will then know where to go to buy what each wants at current value.

HALTERING FOALS.

Foals should be haltered and accustomed to be hand-led when with their dam. There is no time when the education of a horse can be better begun than when with the mother. The advantages of this course are many and horse-breeders should see that all colts are gently hand-led while quite young.

HORSES IN WAR.

To South Africa since the war began have been sent up to 12th June, 91,600 horses. Those from England cost for freight alone \$175 each, Australian horses were delivered in South Africa at a total cost of \$215 each, while those from South America cost only \$125 in Cape Town. The losses in horse flesh have been very heavy and the chunky little ponies from India and Burmah have stood the work quite as well as the heavier and much more expensive English horses.

ROYAL SHOW OF ENGLAND.

By a vote of 38 to 4 the Directors of the Royal Agricultural Society of England decided to have a fixed location for their annual show. This is to take effect in 1902. Meantime there will be a scheme for local agricultural meetings to be held in the different countries as part of the work of the Society.

OWLS.

The barn owl is one of the most useful of birds

and should be protected by the farmer. The owl is much better than several cats, and while it may take a stray chicken if in its way, it does a great of good by keeping down mice and other vermin about a barn. The little screech owl is also an excellent mouser and scarcely touches poultry. Both these will feed on sparrows if kept about a barn.

THOROUGHBREDS.

In England the prices of samples of thoroughbred horses keep up. At Tattersall's a recent sale of 45 yearlings gave very large prices. Of these one dozen was from the Eaton paddocks of the late Duke of Westminster. The favorite of this lot was a bay color, brother of Flying Fox, out of Vampire, by Orme. He brought \$28,000. A bay colt by Orme, out of Kissig Cup, sold for \$45,500. Mr. Siever gave \$50,000 for a filly by Persimmon, from Ornament. The average for the twelve was 18,040. Lord Falmouth's average for sixteen was \$5,750 and Henry Chaplin's average for twelve, \$8,550. Good prices for yearlings.

THE FITTING OF OUR COSTS WOLDS.

By John Park & Son, Burgessville.

The sheep we exhibited at the Provincial Fat Stock Show were bred by ourselves and were got by imported rams and registered Canadian-bred ewes. They were dropped the last of March and first of April. The ewes with the best lambs were put by themselves and fed clover hay night and morning with an additional feed of bran mash at night and in the morning a feed of grain, consisting of one part peas, two parts bran, and two parts oats. At noon they were fed a liberal feed of cut turnips and also fed threshed pea straw. On five days ewes and lambs were given a run in yards. As soon as the grass was ready to turn out on, the ewes were put on good clover and changed from one pasture lot to another every two weeks. This was all the care the ewes and lambs got until weaning time.

When the lambs were weaned they were turned on three or four acres of rape, oats, and barley, turned on this green food about two hours in the morning and taken into the shed before noon, and fed a grain ration consisting of bran, oats, and a little oil cake. They were turned out for two hours in the evening and on to a pasture lot for the night. This method was continued for the summer. The cost to fit a sheep till it is a shearing is about five dollars. Sheep should have plenty of exercise. With this method you will have the right sheep for the flock.