

Technical and Bibliographic Notes / Notes techniques et bibliographiques

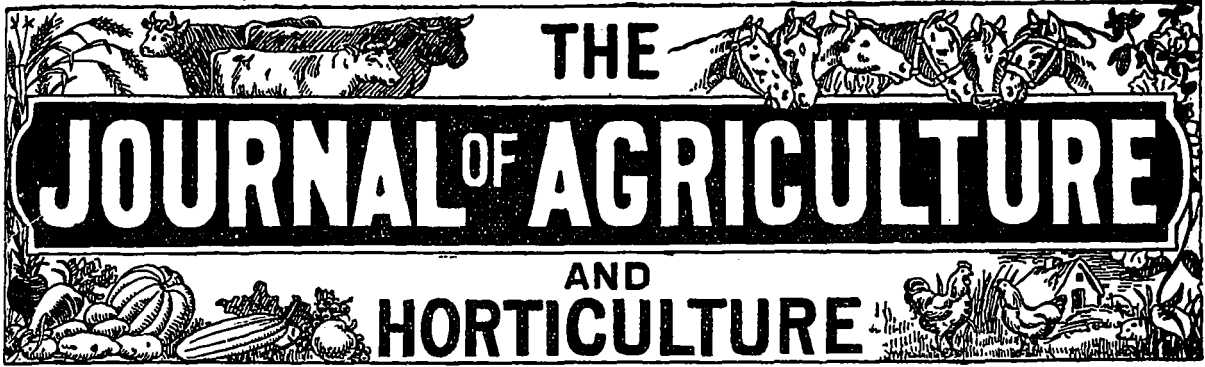
Canadiana.org has attempted to obtain the best copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

Canadiana.org a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.
- Additional comments /
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression
- Includes supplementary materials /
Comprend du matériel supplémentaire
- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.



VOL. 3. No. 22

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

MAY 15, 1900

**THE
Journal of Agriculture and Horticulture**

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 &c. 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

The Farm.

NOTES BY THE WAY.

Roads.—Born and reared in one of the heavy-land districts of England, we have a lively recollection of the horse killing powers of badly managed bye-roads. All very well in summer, they were a terrible burden to the unfortunate cattle in the fall, winter, and early spring. Many a time have we seen an extra pair of heavy cart-horses sent to meet the 4-horse waggons; coming home from London, laden with dung; at the place where the bye-road to the village met the high-road, to help the weary horses home, and, no doubt, the farms in the Wealds of Sussex and Kent were let at lower rentals on account of this terrible inconvenience.

The very measures used in the grain-trade show the difference between districts in which the roads were good and those in which they were heavy and nearly impassable. A "load" of wheat varies in contents according to locality. In the chalk lands of Kent and the other S.-E. counties, where the roads have been always better than in other parts of England, the chalk acting as a drain and the face of the country being invariably what is called in Canada "rolling-land," there the load is set at 5 quarters of 8 bushels, the weight averaging 2,520, which was supposed to be a good load for a waggon and its team on the roads as they existed in the days when the team was in use.

Hertfordshire was a backward part of the Eastern district, and the pack-horse

Table of Contents

THE FARM

Notes by the way..... 505
 Roads..... 505
 Reports..... 507
 The fly..... 509
 What to plant..... 509
 Experiments at Rothamsted..... 510
 Sainfoin..... 510
 Bordeaux-mixture..... 512
 Rape..... 512
 Thick or thin seeding..... 513
 Lime as a fertiliser..... 514

HOUSEHOLD MATTERS

Devonshire cream..... 515
 Dress..... 515
 Recipes..... 516

THE DAIRY

The formation of the dairy-herd, Parry on..... 517
 Contagious abortion..... 520

THE GARDEN AND ORCHARD

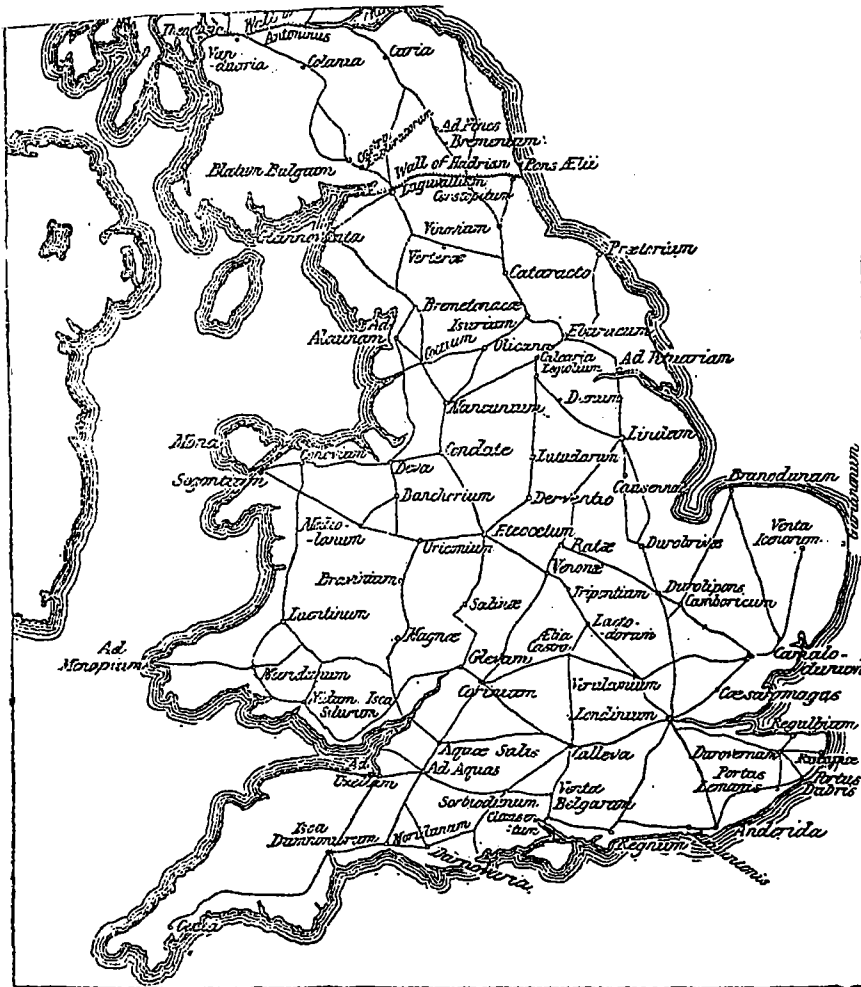
Insects injurious to fruit-trees..... 520
 Horticultural education..... 522

THE POULTRY-YARD

Setting hens, and young chicks, Andres on..... 524
 The chick, and how to raise it..... 525

THE HORSE

Montreal horse-show, W. R. Gilbert on the..... 527
 Sore shoulders in horses..... 528



Roman roads in Britain.

was in use for many a year after its employment was given up in the other parts of Southern England; but though heavy in the winter the roads were fairly level, and the pack-horse load was supposed to be fairly set at 5 bushels, about 315 lbs.

But in Derbyshire, the hills were very severe, and although the roads were dry in consequence, 3 bushels, or 190 pounds, were found to be as much as a pack-horse could be expected to carry on its hardly used back.

Well, the roads all over England now are very different even from what they were at the beginning of the century, and we have always held the

idea that their great improvement is primarily due to the attention called to the magnificent roads laid out all over the island by its Roman conquerors.

Look at the above engraving, and you will see what wonderful work was done by these earnest, strenuous colonisers. Their stay in England lasted only 325 years, reckoning from the subjugation of Britain in A. D. 85 to the departure of the legions in A. D. 410; yet in that comparatively short period, they covered the face of the country, from East to West, and from North to South, with roads that, even to-day, wherever they are found uninjured by man's devices, are as sound and firm as they ever were. And al

this in a wild, uncultivated country; no machinery, nothing but hand-labour; banking up weak places, draining marshes, clearing away overhanging trees, building bridges, the stone-piers of which are even now, in some places, supporting more permanent structures; and so full of forethought were they that they paved the fords of the narrower shallow streams, marking out their course by posts.

As a recent writer on the subject says: "Many of the roads were destroyed long ago and their materials used in making fresh ones; others have gradually been covered up with new road-metal; whilst here and there the currents of traffic have so completely changed in direction that these ancient highways have been left in marvellously perfect condition. The entire system of roads, when finally completed, must have rendered the country practically secure against invasion save in the case which ultimately occurred, the withdrawal of the imperial forces which had so long made it their home."

We are not in much terror of invasion, and our modern system of railroads are doubtless far a head of even the great "Watling Street" that led from London to Chester; but we do need good feeders to these long lines of communication; our farmers want to get their product to market, without killing more horses than is absolutely necessary, in the fall and spring, and the daily multiplying creameries and cheeseries are vainly looking for improved bye-roads to render more regular in point of time the arrivals of the patrons with their loads of milk.

Cannot we take a small leaf out of the book of those indefatigable workers who, if we made be pardoned the word, *grid-ironed* England before road machines and steam-engines were invented; or must we remain as we are?

By the bye, all those who have read "Ivanhoe"; and if there are any who have not read it, we rather envy them their first enjoyment of the tale; will remember that the Prior of the Abbey of Jorvaulx enquires of Robin Hood how much he has to pay for walking on "Watling Street" without a troop of soldiers at his back. Watling-Street runs from Richborough in Kent through

London to Deva, now Chester, passing through Canterbury, where the old road is still called Watling Street, and the same name adhered to it in London. The name is probably from the Saxon *Gwathling*, whether the final *ing* is a *patronymic* or not we are not certain; if it is so, the meaning would be "the family of the Watt or Wattles."

Goldwin Smith, in his "Political History of the United Kingdom" (Cop, Clark Co., Toronto, 1900), speaking of the "Old English Polity," says: Of the Roman Empire remained only the great military roads which traversed the island, solid as Roman character, unswerving as Roman ambition." The book is well worth reading.

We forgot to mention that our word *street* is derived from the Latin *strata*, a paved road, equivalent to the French *chaussée*, whence, in its turn, comes the English *causeway*, though both may be from *calx*, i. e., the limestone with which they were sometimes paved.

REPORTS.

We have to acknowledge, with thanks, the receipt of several of the publications issued by the Ontario Agricultural College, including Prof. Harrison's excellent description of the "Weeds of Ontario," and the twenty-fifth annual report of the College.

A very handy compendium indeed is the former of these two reports. The engravings of the plants are clear and easily recognisable, their description, and the best methods of ridding the land of the pests are as full as need be.

One passage in the report of the Professor of Agriculture, Mr. G. E. Day, strikes us as being founded on very sound reasoning.

Speaking of the general financial standing of the farm, Mr. Day says: "In the second place, I beg to state most emphatically that under existing conditions, it is impossible to make the farm show a satisfactory profit. It is true that by requiring all departments to pay the Farm department for everything received therefrom, the same as if purchased or hired from an outsider, the annual deficit shown in the public accounts could be greatly reduced. In order to make the farm show

a profit, it would be necessary to set a portion of it apart, equip it with separate buildings, stock and implements, allow no other department to interfere with it, and have its accounts kept entirely separate from all others. But if this were done in accordance with the demands of some critics, and a profit shown from the land thus set apart, of what value would this be to the farmers of the Province? It would merely be demonstrating what is already being demonstrated on many well managed farms in this Province, that it is possible to make a profit from farming by pursuing a certain course. We find men making money out of dairying, out of fattening animals for market, out of breeding pure-bred stock of various kinds, and other lines of farming, as well as from all sorts of combinations of the lines mentioned. Now, who is to decide, or how is it to be decided what particular line or combination of lines of farming is to be adopted for this proposed model farm? Since it is a provincial institution, it is evident that any system which might be adopted must be applicable to the Province as a whole. There could be no excuse for following methods which, from their nature, would be incapable of general adoption. Is dairying to be followed? Then what about those whose taste, location, or investment of capital renders dairying out of the question? And would it be an unmixed good if all the farmers in the Province engaged in dairying? Are cattle to be purchased for feeding, and possibly grain purchased to feed them? Then who is to raise these cattle and grow the grain? Let everyone who has a plan to propose, apply it to the touchstone of general applicability, and see whether at best it would not only be a scheme to benefit a few at the expense of many."

We have some experience in the management of Model-Experiment-farms; and a heart-breaking experience it was; and we long ago came to the conclusion that it is utterly absurd to look for profit from the yield of a farm carried on for the purpose of education.

Prof. Zavitz, the Experimentalist, reports on the best possible selection of seeds for the general cultivation of the province, all of which, we presume, will be found suitable to the farms of Quebec, or at any rate for the Eastern part of that province. But we must be allowed to differ from him in one respect; his plan for growing rape is about the same as that practised in France for

growing *colza* as an oil-producing seed, whereas, what we want is not stout stems but a copious production of succulent leaves. Thin-sowing, at intervals of thirty inches, will give plenty of seed, but will necessitate hand-hoeing, a work by no means suited to the taste of our labourers in this part of the world; while thick-sowing—6 lbs. to the acre, 5 lbs. to the arpent—will choke every weed to death, and save labour where labour is very expensive and by no means skilful. Flat culture is, of course, the best, as on drills sheep very often get *cast*, and if fat, cannot easily get up again.

We quite agree with Mr. Zavitz as to the propriety of confining the consumption of this crop to sheep and cattle, though we should prefer restricting it to sheep alone, but why "is nothing gained by feeding grain to animals when on rape"? It is and always has been the practice of all the best farmers in the rape-growing districts of Southern England, to give grain to sheep fattening on that crop, and, personally, we have always found them do better with some dry food when feeding off such a very succulent plant. We had rather not risk our flock (if we had one), in a wet autumn, on rape without either grain or clover-hay chaff.

In Kent, Surrey and Sussex, farmers sow *rape*; in Essex, Cambridgeshire, and parts of Hertfordshire, *coleseed* is grown; but the two plants are, barring some roughness in the leaf of the latter, practically the same thing.

The common bean seems from Mr. Zavitz's account to yield pretty well in Ontario. We once grew at the rate of 72 bushels an acre on a small piece of land at Joliette; but then we always sowed the beans very thick in the rows. All pulse, pease and all, are sown too thin in this country—rows not hills should be the practice with beans. We do not think that the horse-bean is ever likely to become a favourite on this continent; it does not like the hot, dry summer. A pity, as we have known 80 bushels, of 69 lbs. a bushel, grown on an acre of land in England. Mr. James Drummond, of Petite Côte, Montreal, always used to grow a few, but I have not heard of their yield lately.

The report seems to be rather doubtful as to the successful growing of *lucerne*, or alfalfa, in the

province, except in combination with other clovers and grasses. At the College, however, the annual yield of the crop, cut green for fodder; which, indeed, is the proper mode of utilising it; has been from 17 to 18 tons.

Sainfoin has been tried, but, owing to the difficulty of getting good seed, gets hindered in its progress by weeds and grass. We always recommend sowing 4 bushels of the unhusked or $\frac{3}{4}$ of a bushel of milled seed, together with 4 lbs. or so of common yellow trefoil, commonly called hop-clover (*t. procumbens*) with it. If the sainfoin is sown in the capsule, i. e., the husk, the seed should be buried an inch deep; if the seed has been milled, i. e., is naked, the same treatment as that required for ordinary clover-seed will do. The hop-clover will fill up the spaces, where the sainfoin plant is wanting, in the first year. A calcareous soil is the soil that suits sainfoin the best. Our older writers on "husbandry" invariably state that horses fed on good, early-cut sainfoin-hay need no grain! It is emphatically a hay-crop, and with us used to stand for from 4 to 8 years.

Sainfoin means sound or healthy hay; the botanists call it *onobrychis*, from the Greek words signifying "Asses' food."

THE FLY.

We print the following as a reminder to our friends at Ste-Anne de Bellevue, where, last season, not only were the cows driven half-crazy by the fly when at pasture, but no precautions were taken to keep the same torments out of the cow-house and calf sheds when the poor things were shut up. Ed.

THE FLY QUESTION.

The season is close at hand when the flies will take away the profit of the dairy farmer more than all other difficulties combined.

From an observation of many years we are forced to the conclusion that the shrinkage of milk in summer is caused more by flies than any other thing. Since dehorning has become so general a custom, the effect is worse than ever, for the cows bunch together like sheep, and the horns are quite useful as a means to rub the flies off that settle on the shoulders and back.

It is evident then, that it is greatly to the interest of the dairy farmer that he give this fly question serious attention. It will be money in his pocket to do it.

It will pay a big profit to do anything almost that will rid the cows wholly or partially of this intolerable nuisance.

One of the most effective and profitable methods we have yet tried with our own cattle is some one of the well known fly lotions, such as "Shoo Fly" and other compounds which are advertised for this purpose.

The man who has a herd of cows and objects to the slight expense necessary to the use of such compounds, certainly does not figure well for his own profit.

The one great ruling word that should guide every dairyman in his experience with his cows, is the word "COMFORT."

Whatever destroys or lessens even the comfort of his cows robs him to a corresponding extent of his profit. Thousands of cow farmers do not see this, but it is true. If we are to make money from cows in summer or winter, we must study well how to promote their comfort. The fly question is an important one to consider in this line.—Hoard.

WHAT TO PLANT.

We are glad to see that our exchange, *Hoard's Dairyman*, recommends a good allowance of seed for green-fodder crops. We prefer as a mixture, 1 bushel of pease, 1 of vetches, and $1\frac{1}{2}$ or 2 bushels of oats to the acre, sown at three times, with an interval of from 10 to 15 days between the sowings. The seed, if put in with a *drill*, may all go in together, say, three inches deep. Ed.

Will you please advise what you would plant for feed on a new farm, where all cleared land (about 70 acres) is low and marshy, much of it having been heretofore used for meadow, and some never broken up. The ground is frosty, and there is danger that corn may not mature. It is desired to raise feed for six horses, two colts, three or four cows, and from twenty-five to fifty spring and summer calves. The intention being to feed young cattle next winter, and the calves being raised with as little milk as possible. All feed to be grown on the place if possible, and young stock to be kept in small yards under sheds.

There is no silo on place now, and it was thought best not to provide one until the success of a crop was assured.

F. L. F.

Manistee, Mich.

The facts stated above are hardly sufficient to justify a stranger in giving very specific advice. One would want to know what others have done in that vicinity with similar land, and what results have been obtained. In a general way we might suggest sowing peas and oats, and planting the earliest maturing variety of flint-corn. The peas should be sown as early in the season, as the ground can be worked, at the rate of one and one-half to two bushels to the acre and covered from three to four inches deep, and a week thereafter sow on about one and one-half bushels of oats, and cover the seed with a drag. Plant the corn as soon as the soil is well warmed up, and the danger from spring frosts is past.

EXPERIMENTS AT ROTHAMSTED.

Sir J. B. Lawes has just published his report on the 52nd crop of wheat grown on his experimental farm at Rothamstead, England. During that long period he has been growing wheat (1) on land cropped year after year without any manure whatever, (2) on land supplied with farmyard manure alone, and (3) on three different plots each treated with artificial manures of different blends, but assumed to be most suitable for promoting wheat growth. The unmanured plot is always kept free of weeds.

The wheats grown are all winter wheats and last winter was rather favorable to excessive growth. The spring was less favorable and in April and May there was excessive rainfall. June, July and August were extra warm with very little rain, conditions all of them favoring extra straw growth but favoring early ripening. The previous year had been one of extra fertility and this was little behind it. The crop for this year ran as follows: Unmanured plot, 12 bus.; manured, 42½; artificials, 36. The weight in each case was close up to 62 lbs. The average for the previous 47 years was, unmanured, 12¾, manured, 35¾, artificials, 35½; weights close up to 60 lbs.

For the last few years a field has been devoted to green crops of several different kinds. This was fallowed to clear it of weeds and sown this year to wheat. Leguminous crops (clover, peas

and beans) left greater manurial value suitable for wheat than any other, consequently much of it was early laid down, but the yield still ran from 39 up to 45 bushels. Five out of seven plots ran from 42½ to 45 bus. and the weight all over was 63½ to 64½ lbs. A plot unmanured for 52 years and worked on the 4 shift system has grown so poor that turnips would not grow for the last 40 years, while wheat has this year made on the same ground 30½ bus., weighing over 63 lbs. This indicates wonderful staying power in the wheat over all other crops, on unmanured land.

—N. W. Farmer.

SAINFOIN.

Quebec, 18 June 1891.

DEAR JENNER-FUST,

Many thanks for your pains *in re sainfoin*. You have made an ocular demonstration of the value of *sainfoin* of great importance.

I had ordered the seed from France—but could not trust the season so far, as seed which I got in 1887 and sowed at Three Rivers was completely ruined by the drought. I shall have this fresh seed (from Vilmorin's) sown as soon as rain comes.

Mr. Joly was highly pleased with *sainfoin* of which he got very fine seed from the Pacific Coast this year.

You will no doubt publish further notes of the *sainfoin* besides what I read in the proofs for July?

Yours very truly, ED. A. BARNARD.

In compliance with the above letter, I proceed to relate all I know about *sainfoin*, both in England and in this country.

Like Lucerne, *sainfoin* imperatively demands a soil free from stagnant water. In places like Sorel and Joliette, where the water stands within two or three feet from the top-soil; it would be waste of money, time, and labour to sow it. The seed is expensive, the preparation of the land must, if success is hoped for, be thorough, and, in every way, the only proper soil is a dry one. Chalk or limestone is the most favorable subsoil; in fact, in England, and in the western part of France, *sainfoin* is rarely seen on any other formation than the chalk. Still, it will do fairly on any dry soil except heavy clay.

One passage in Mr. Barnard's letter I must presume to differ from. He says that "seed that

he sowed in 1887, at Three-Rivers was completely ruined by the drought." (1) Now, sainfoin, like lucerne, is emphatically a dry-season plant. This spring was dry enough in all conscience; and, yet, the sainfoin on the Dawes' farm at Lachine beat all the clovers and timothy by its side into fits. If, however, the seed, which is, un milled, as big as that of the wild vetch (*pois sauvage*), is not covered in sufficiently—say 1 inch—and a period of drought follows, the first spearing (*Scottice* "braird") will very likely perish. Sainfoin seed should be drilled, in rows 5 or 6 inches apart, or, if broadcasted, well harrowed in: at all events, it *must* be buried.

There are two kinds of sainfoin; the common and the giant-sainfoin. The former has been grown in England for more than 200 years, and is the one more commonly sown as it stands longer than the giant, which is a modern introduction.

The seed is sent out by the growers in the capsule, but the seedsmen "mill" it, which is a convenience, as in the former state four or five bushels are required to seed an acre, whereas of the milled seed, 3-4 of a bushel—say 45 lbs.—are enough. I always sowed the rough seed in England, because the drill buried it sufficiently, but here, where drills are not common, the cleaned seed is more likely to be harrowed deep enough into the land, and there will be little risk of the barrow-tines pulling it up to the surface again, I should sow sainfoin after a heavily manured hoed crop—potatoes, roots or corn—and at the same as the barley or other spring-grain, crossing the rows of grain with the sainfoin seed, and finishing with the roller.

After the barley, or oats, is out, a fair dressing of dung will both act as a mulch and tend to increase the crop of the following season. The plant is a shy grower, and never looks promising the first autumn; indeed, it does not come to its best till the third or fourth year, wherefore I always recommend sowing from 4 lbs. to 6 lbs. of common yellow or hop-trefoil (*trifolium procumbens*) with it, as the first cutting of sainfoin is always disappointing, but the plant standing from 6 to 10 years always makes up for this defect.

Some recommend sowing sainfoin, and lucerne too, in double rows a foot apart with an interval of 30 inches between the double rows. If any one likes to try it he can, but I cannot advise it, as the hoeing, by horse and by hand, must be

kept constantly going all the season and *it won't pay*.

Sainfoin came to England originally from France. I cannot help wanting to spell the word saint foin—*holy-hay*—though *sain*, which signifies *wholesome* may be right. At all events, the meaning of the botanical name, *onobrychus sativa*, is clear enough—*asses' food*! I won't make a pun on the word, though I could.

If you wait to cut this crop for hay till the blossoms are expanded, you will not please your animals. It can hardly be cut too soon; in fact, "the best sainfoin-hay," says old Jethro Tull, "is that cut before the blossom comes out at all. This hay has kept a team of working horses, all the year round, fat, without oats. The same fattened some sheep in a pen, in winter, with only it and water; they throve faster than other sheep at the same time fed on pease, oats, and meadow-hay."

The *Giant-sainfoin* came into notice about 1842, and when I went into Essex to live, in 1852, had become pretty well established in the eastern counties. It is said to produce three crops of hay a year, but I never saw more than two, and it certainly does not stand so long as the common sort. The seed is much cheaper. Wholesale price, as quoted to me by Messrs. Raynbird & Co., Basingstoke, Hants, England:

Common English milled sainfoin 50s. per 112 lbs.

Giant French " " 36s. " "

Cash, less 2% Dis., on board cars at Basingstoke—sacks extra.

Never having grown the *Giant-sainfoin*, I cannot speak either in its favour or against it. The common seed seems costly, but as it stands so long, it does not come to much *per annum*.

And now for facts about the crop I grew at Lachine:

The land was in pretty good heart, to begin with, the previous crop, oats. On the 18th May, 1889, the seed was sown and harrowed in, after the barley was harrowed, and a rolling finished the job. The barley was a very heavy crop in patches, and, here and there, lodged and injured the plant of sainfoin. The seed was not put in thick enough, though very equally distributed over the ground. In the autumn, a fair coat of dung was applied, but the following winter—1889-90—was, as my readers will, perhaps, remember, a very changeable one, frost, rain snow and thaw, succeeding one another with great ra-

pidity: in fact, in the month of February, I never hoped to see any plant of sainfoin at all. But, when the first gentle breezes from the West began to blow, and the south-west rains began to rouse the life-blood of the plants into action, my hopes rose with the barometer's fall, and the sainfoin bravely vindicated its right to the confidence I had placed in it: in other words, it began to tiller out and thicken on the ground as soon as the weather gave it a chance to grow. Still, the first year's was not a satisfactory yield, in spite of the bush—or rather chain—harrowing and rolling Mr. Tuck gave the land. At all events, the sainfoin stood, and though I was half-afraid the Messrs. Daves not being acquainted with the crop would be inclined to have it ploughed up, it was allowed to remain. This spring, the third from seeding, things were very different. The sainfoin had gathered together and looked like yielding; as the season advanced, appearances improved, and towards the end of May were all that could be expected.

Now, on either side of the sainfoin were two pieces of clover; the one being the *cow grass*, *trifolium pratense perenne*, or perennial clover, the other, the common red-clover, or *pratense*: the former was sown on the same day as the sainfoin, 1889, the other sown, with the barley, after a heavily manured crop of roots. On June 2nd of this year, 1891, the sainfoin, in spite of the hot, dry spring, was 15 inches high and just coming into bloom, the perennial red-clover 7 inches high, and the common clover 5 inches. Between the above date and the 17th of the month, a wonderful growth, aided by the rain of the 2nd and 3rd, took place, for on that day the common clover had attained a height of 15 inches, the perennial 18 inches, while the sainfoin stood 33 inches high; and whereas neither of the clovers had put out the blossom, the sainfoin was covered with its beautiful pink flowers, and *should have been cut for hay a week before, i. e., on the 10th of June.* (1)

Need I insist on the value of such a plant in a country like this? I think not. It is good for all stock; it yields largely; it will cure the *scours* in calves and the *green-skit* in lambs; it is at least a fortnight earlier than red-clover; and it will stand from 8 to 10 years if decently attended to.

ARTHUR R. JENNER FUST.

(1) Samples of all three were sent to the Department of Agriculture at Quebec. Ed.

PREPARING BORDEAUX MIXTURE.

For one barrel of Bordeaux mixture:

1. Place six pounds of copper sulphate (blue-stone) crystals in a coarse bag and suspend in a tub or earthen vessel containing 25 gallons of water, until the crystals are dissolved.

2. In a second tub place six pounds of good stone lime, slake and dilute to 25 gallons.

3. Now pour the two solutions at the same time into a barrel or into a spray pump and stir vigorously to insure thorough mixing.

Note.—The solutions should be poured through a sieve containing about thirty meshes to the inch, in order to remove any particles that might clog the nozzle.

To make stock solution of Bordeaux mixture:

4. Place 50 pounds of copper sulphate (blue-stone) crystals in a coarse bag and suspend in a barrel containing 50 gallons of water until all is dissolved.

5. In a second barrel slake 50 pounds good stone lime and dilute to 50 gallons.

6. To make a barrel of Bordeaux mixture from stock solution stir (4 and 5) thoroughly, dip six gallons from each and place in separate barrels and add water enough to make 25 gallons in each and mix as directed in 3.

7. The stock solutions will keep almost indefinitely, but the Bordeaux mixture should be used as soon as possible after it is prepared.

8. Bordeaux mixture is a preventive and not a cure for fungus diseases. It should, therefore, be applied early, adding four ounces of Paris green to each 40 to 50 gallons to kill insects.

9. Bordeaux mixture will prevent apple rust and scab, fruit rots, blight of tomatoes, potatoes, rust of celery, and in short, all of the fungus diseases that begin on the surface of plants above ground. It should not be used on peach or plum, as it is liable to injure the foliage. — Prof. Charles O. Townsend, State Pathologist, Maryland Agricultural College.

RAPE FOR FORAGE

Prof. J. Fremont Hickman, Ohio Exper. Sta.

This article will answer the inquiries of one of The Homestead's western Mass subscribers, who says farmers in his section are interested in the possibilities of rape for New England.

This crop is not widely known south of a line passing through southern Michigan. It belongs to the same family of plants as cabbage, mustard, turnips and rutabagas. In its early growth it resembles the turnip to a marked degree. It may be planted or sown broadcast on well-prepared ground almost any time after May 1 until July 15, and will in favorable seasons make considerable pasture when sown as late as Aug 1. The earliest seeding will make a slower growth, but will make a larger yield per acre. Of several varieties of rape, none recommended for our soil or climate is superior to the Dwarf Essex. From 4 to 5 lbs of seed when put on broadcast will be ample, and half that amount will plant an acre if it is drilled id rows 30 in apart. This method is best for early planting, as some cultivation may be necessary to keep the weeds down.

This plant may be cut and fed in the barns, and is especially good for fixing up show sheep, and bringing up sheep that have gotten out of order. But its wider use is as a pasture. For this purpose it is not often needed until July or August, sometimes not until the later fall months. It is a good idea to plant some early in May, and then every two or three weeks thereafter until August. This would under ordinary circumstances furnish good pasture throughout the season. When the rape is 2 or 3 ft high, the sheep may be turned into it, but the precaution should be taken to have them run into an old pasture field that joins the rape patch, for the rape alone may not agree with them. While they may not eat too much the first few days, there is danger after they get to eating it that they may overload while it is wet, which may result in indigestion, bloating, and in some instances purging. Even scanty, dry pasture will correct, in most cases, all these difficulties.

During the past summer we turned our lambs after weaning into a field that had been mowed and on which there was plenty of pasture until after Oct 1. In one corner of this field we had planted a rape patch early in May. On account of abundant pasture they ate but little rape until the pasture grew short, after which they commenced eating it gradually, and during Nov. they almost lived in the rape patch, and gained more weight than in any previous month.

When this plant is eaten or cut off, it starts a new growth almost immediately, and continues to grow until after freezing weather. Frosts alone do not kill it, as it will stand several degrees of

freezing. If, however, the sheep break off the branches while it is frozen, it is permanently injured.

There are two objections to the rape plant. The first, about which there is doubt, is its liability to attack by cabbage aphid. The second objection is the alleged rapid depletion of the soil, (1) but further proof of the fact remains to be brought out. From our experiment with the crop I am clearly of the opinion that it is worthy of a fair trial, and may prove to be a forage crop of more than passing value, especially to the sheep breeder.

THICK OR THIN SEEDING.

D. L. Wellman, of Frazee, Minnesota, the originator of Wellman's Fyfe wheat, has a letter in the *Fargo Forum* that is worthy of notice. He has come after a pretty lengthened experience to the conviction that thin seeding is best, and sows about $\frac{3}{4}$ of a bushel to the acre, and as a result of this has been able to produce heads with five or six rows of kernels on them. Besides his own practice he refers to the work of Hallett, who, from 3 acres of good rich land and one-third of a bushel per acre of seed, raised 72 bushels to the acre. By this method and continuous selection, he was able to show heads increased from $4\frac{1}{2}$ inch long and 47 grains to twice the length and 123 grains. Another example quoted is from South Dakota, where from a peck of seed, 30 bushels were grown. And he contents that the seed from such a mode of seeding is bound to have a greater amount of vitality than that raised from thick seeding.

There could be a good deal said in favor of Mr. Wellman's opinions, but the most obvious objection is that in our country the length of the season is so limited that early ripening is more important than a problematic increase of yield from a limited seeding. Mr. MacKay, of Indian Head, furnished in our last issue a case very much to the point. In that district last year wheat on summer fallow on heavy land had to be cut unripe simply because the season was too short to mature it properly. To save a peck of seed, thereby encouraging freer tillering and slower-ripening,

(1) What utter nonsense! How can a plant that is necessarily consumed on the farm, and generally *in situ*, that is, on the very spot on which it is growing, "deplete the soil?" Ed.

may eventuate in a half-filled crop, checked by frost and worth less than an earlier ripened yield of several bushels to the acre less. (1)

The present season may supply an example in which limited seeding would come out all right. As we write there is a continuous sunshine. Sow less than a bushel of good seed on summer fallow, and with ten days of fine weather there will be an early and vigorous start. Let a night or two of frost come along about the middle of May to cut that wheat down. At once there will be free tillering, and a close stand, demonstrating the virtue of thin seeding. But seed a piece of ordinary stubble plowing in the same way, and for want of stimulus in the soil it will make a dragging start, a poor start and light yield. Our assumption is that double the seed would be safer for the probable risks of the next few weeks. Will the event justify that assumption or will it not? In two cases out of three we think it will.

N.-W. Farmer.

LIME AS A FERTILISER

To the Editor of Farming :

The writer, during the last twenty-five years, has endeavored to induce farmers to use lime, in addition to all the barnyard manure they can procure, but so far his efforts have not met with much success.

Although its use is surprising, and increases the quantity and quality of all kinds of produce, yet the farming community do not realize the wonderful possibilities of its use, and this is to be regretted, as the result is frequently a half more crop for the expenditure of less than one dollar per acre annually.

Messrs. Mills and Shaw, authors of "The First Principles of Agriculture," authorized by the Honorable the Minister of Education for use in the public schools of Ontario, on page 54 say :

"Lime exerts a fourfold influence as a fertilizer :

"(1) It is a direct source of plant food ; that is, the decayed vegetable matter), neutralizing the 'sour,' organic acids that it contains, and rendering the soil 'sweet' and capable of sustaining healthy plant life.

(1) A very sensible argument. Thin-seeding does very well for fall-wheat, but for wheat sown in the spring $2\frac{1}{2}$ or even 3 bushels are not too much for an acre. Ed.

"(2) It unlocks the stores of inert mineral matter in the soil, especially the potash and soda, and renders them available as plant food.

"(4) It ameliorates the texture of soils that are stiff ; that is, makes them more easy to be plowed, harrowed, rolled, etc."

Lime improves the quality of grain, grasses, and other crops ; hastens their maturity, destroys insects, and checks the growth of moss. While it improves the texture of strong clays, it also increases the capacity of light soils for absorbing and holding moisture.

The quantity of lime used varies, one to two tons per acre being an average dressing, but small dressings and frequent are preferable to larger ones infrequently applied. The lime intended as manure should be harrowed in with the seed, plowed under.

Although hundreds of students attend the Experimental Farm every year, yet when they return home, they never appear to test the use of lime. This could easily be done by putting lime on a quarter of an acre in addition to other manures, on any field of grain, hay, or roots, at a cost of a dollar, although a few acres would be more satisfactory. After land has been cultivated forty or fifty years it is only reasonable to expect that the soil becomes improverished, and barnyard manure can only partially enrich the soil, and must be assisted by fertilisers ; and it has been proved that lime is one of the very best, and it is also very plentiful, and be had at reasonable cost.

It is claimed, and with good reason, that green clover plowed under becomes a good fertiliser, but it is also a fact that clover is not sure to take root, and is often found in bunches far apart ; but when lime is applied a good crop is assured. This I know to be a fact.

About twenty years ago the late Mr. Lauder, of Deer Park, bought thirty acres of land of poor quality. On that property there were four acres of an old brick-field. He cultivated this, used lime, and sowed carrots, and sold the crop for over \$500 the following winter.

A farmer near Milton never sowed wheat without well liming the land, and never had less than fifty bushels per acre. Farmers should try the experiment and find out for themselves whether their crops are benefited by its use. If benefited, then surely they would use it extensively, and if of no benefit, get some other fertiliser, as land

has become improverished and must be assisted in order to make farming more profitable.

I do hope that gentlemen who attend Farmers' Institutes will take this matter up and investigate, and I have no fear of the result, which will be a prosperity in farming not hitherto dreamed of, the crops increased 50 per cent., and with little extra labor to effect the result.

Farmers, test it for yourselves this spring, and don't wait for your neighbors to try; do it yourself.—Toronto, Ont. W. L. SCOTT.

A hoss-trade ain't like anythin' else. A feller may be straighter'n a string in ev'rythin' else an' never tell the truth—that is, the hull truth—about a hoss. I trade hosses with hoss traders. They all think they know as much as I do, an' I dunno but what they do. They hain't learnt no diff'rent anyway, an' they've had chances enough. If a feller came to me that didn't think he knowed anythin' about a hoss, an' wanted to buy on the square, he'd git, fur's I knew, square treatment. At any rate, I'd tell all't I knew. But when one o' them smart slicks comes along an' cal'lates to do up old Dave, why he's got to take his chances; that's all.—*David Harum*.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

I am told by the Editor of this journal that during the last month he has had numerous enquiries as to the way to make Devonshire cream.

He has written an article all about it which appeared in the last number.

Now as I have had quite a bit of practical experience, learnt through the Editor, (the journal was not in existence in those days), I have thought by speaking about it, somebody might be induced to profit by the present demand for this delicious luxury.

We are living in an extravagant time, where anything really good will fetch its own value.

When I made Devonshire cream my working tools were of the most primitive kind.

The use of the kitchen-stove, pans to set the milk in, about the size of a pail but much larger ound the top than the bottom, a large crock or

jar to keep the cream in, one wooden stick to stirr the cream into butter, which I made about 3 times a week as the process is a very short one. This was my stock in trade, but the result was just as good as if I had tools of the most elaborate kind, only rather more troublesome, but I was young in those days and filled with a desire to do what I undertook to do well. When the milk came from the cows, after straining it was divided equally among so many pans, so that each one should receive the same treatment; these were put away in the cellar for from 16 to 24 hours, according to the weather; then they were carefully carried to the kitchen stove for treatment, where they were slowly allowed to warm up till a round ring formed in the cream the same size as the bottom of the pan and this is the most anxious time of the whole process. A constant watch must be kept up to avoid the breaking of one of these rings which will be of a very pale, fawnish colour when well done. Cool down the fire so that there shall be no increase of heat, and when the pans have settled for about 15 minutes let them be taken back from whence they came to stand for their allotted time. It will require a firm strong pair of arms to convey the pans to and from the stove so as to avoid disturbing the cream, these I always had at my disposal in the shape of a strong willing country girl who acted as cook at this time. It was a great pleasure at skimming time to take off the lovely thick, rich cream.

I hope some strong farmer's daughter will take hold of this and give it a fair trial. I am quite sure it will pay, and the milk after skimming is so good that it would fetch a fair price, and this will compare well with some of watery fluids often sold as fresh milk.

DRESS AND THE COMPLEXION.

How is it that as many women will wear colours that are fashionable without considering whether they are becoming or not? A woman who wishes to look at her best, should study what colours best suit her complexion, and should not be persuaded into any others. Dark-complexioned women, who are inclined to sallowness, will find yellow will improve their appearance greatly. Yellow, generally speaking, is a most becoming shade for nearly all brunettes. Fair women have the greatest choice in colours,

for with light hair and blue eyes they can wear pink, pale blue, heliotrope, mauve, myrtle, green, and white. The same thing applies to the red-haired woman, who can wear, with the clear skins which go with that coloured hair, any colour but pink and red, and to no woman is white so becoming as to the red-haired woman. A safe rule in dress is to repeat the colour of the eyes. For this reason pale blue and dark blue are always so becoming to the blue-eyed woman. Gray is becoming to blondes as a rule, but a grey costume should always be relieved with a touch of colour about it. Fur is becoming to all complexions; its effect is very softening; so all kinds of fur can be worn with advantage.

NEW SHIRTS AND BLOUSES.

The affection we have for the useful shirt and waist shows no abatement; unlike any other article of dress, we never tire of the blouse in its infinite variety of shape and material. In the winter the favourite blouse is of flannel or velvet or velveteen, but as the spring comes on we begin to look out for our favourite washing materials as eagerly as if we had never seen it before. The new models showing for the spring are endless in variety, and are more artistic and becoming than ever before. For spring wear the elaborate skirt seems to be the favourite. Yokes have gone out of fashion, and in place of the stiff linen collar many are made with little soft turn-over collars cut in points or tabs, and the sleeves are much smaller than last year. The favourite back has one box-pleat about two inches wide down the middle. The plain French back is also used, and many of them show the back a mass of tiny tucks. The shirt and blouses of mercerized cotton are a feature of the spring display. They rival the silk ones in beauty. They have an exquisite silky finish, and yet launder to perfection. In old-rose, Wedgwood blue, silver grey, and daffodil yellow, they are decidedly things of beauty. They come in two styles, either severely plain or very elaborate, in make and finish.

Silk scarves of different pretty shades are a feature this spring. Some have printed or embroidered patterns on the ends, and all are finished with a soft silk fringe. Straw hats will be trimmed with these scarves, one tied round the crown, with quills or feathers at the side, with

another to match for the neck, which is tied under the chin in a large bow.

In this era of lace-trimmed wearing apparel a deal of anxiety is caused by the necessary cleansing. The professional prices are ruinous to the small income, and to clean them at home requires skill and time. Here is the simplest and safest methods, according to an American paper: Spread the lace out on paper, cover with calcined magnesia, put another paper over this, and lay it away between the leaves of a book for two or three days. Then all that is needed is a shake or two to scatter the powder, and the lace is as clean and fresh as ever. For valuable laces this is the only safe method of cleansing, as many of the delicate threads will not stand rubbing.

HARICOT MUTTON.

Some employ for this dish the breast, or what cooks call the scrag-end of the neck of mutton, but perhaps it is better to have the middle or best end of the neck, say 4 lbs. The other ingredients for that amount of meat should be three onions, three carrots, and three turnips, pepper and salt to taste and one tablespoonful of either ketchup or Harvey's, or other such sauce. Trim some of the fat away, and cut the mutton into thin chops, and put them along with the fat you have cut away into the frying-pan, and fry them to a pale brown, but do not quite cook them. Now cut up the carrots and turnips into dice, and slice the onions, and having removed the half-cooked chops, slightly fry the vegetables in the fat from which you have removed the mutton. This being done, place the mutton in a stewpan, and over that put the partially-cooked vegetables, and over them pour just enough water to merely cover all. The water should be boiling. Give the whole one boil, skimming off any dross, and then move the pan to the side of the fire to simmer gently until the meat is tender. Skim off every atom of fat, add the pepper and salt and the ketchup, or other sauce you may prefer. Careful cooks prepare the haricot the day before, because when the stew becomes cold you can get rid of the fat more effectually, and remove the complaint sometimes made of the dish being "greasy" in taste.

BAKING FISH.

Many housekeepers never prepare fish in any way except frying, ignoring the ways in which a tastily dish is prepared by baking or boiling. Haddock or cod, are specially nice when baked. Remove the eyes from the head and the fins from the body of a dressed fish weighing about four pounds. Make a nicely-seasoned veal stuffing, fill the body of the fish with it and sew up the opening. Pass the tail through the sockets from which the eyes have been removed, and pass a skewer through, close to the head, to hold it in place, thus curving it into a ring. Arrange on a fish-sheet in a baking pan. The fish sheet, which is pierced with holes, is slightly raised from the pan, like the drainer in a butter dish. Lay thin slices of bacon on the top of the fish, and put it into a hot oven. In about fifteen minutes baste with a cupful of hot white broth, and reduce the temperature. Bake forty minutes, basting the fish thoroughly every ten minutes with the liquor from the pan. Then remove the bacon and pour a white sauce made of two tablespoonfuls each of butter and flour and a cupful of white stock over the fish, and sprinkle over this fine bread crumbs. Bake fifteen minutes longer, or until the crumbs are brown. Slide the fish from the sheet on to a warm dish, remove the skewer, squeeze the juice of a lemon over the fish, and garnish with parsley and slices of lemon. Strain the sauce, remove the fat, and serve in a sauce boat. Tomato sauce may be used instead of the white sauce. Baste thoroughly of the fish will be dry.

Marks on tables caused by hot dishes may be removed by paraffin being rubbed in well with a soft cloth, finishing with a little methylated spirit, rubbed dry with another cloth.

When hot grease has been spilled on the floor, dash cold water over it, so as to harden it quickly and prevent it striking into the boards.

The Dairy.

THE FORMATION OF THE DAIRY HERD

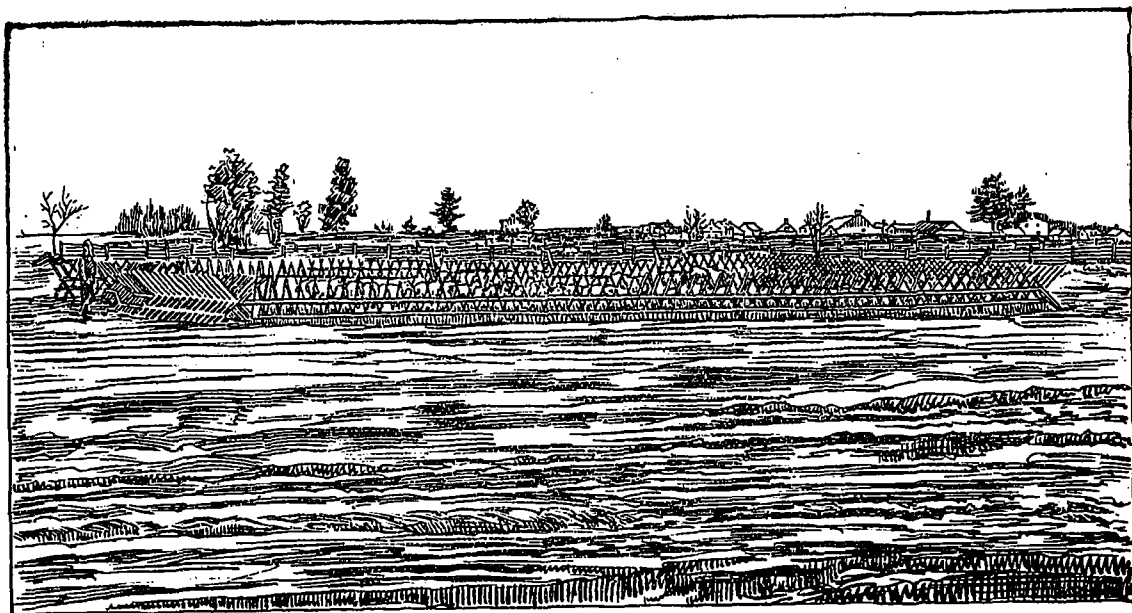
There is no doubt that the pursuit of modern dairy farming depends for its success upon certain fundamental conditions. First, the owner or

manager of the business himself, must have a natural fondness for animals, prompting to generous and kind treatment, as well as good judgment in selection, breeding, and care. For best results he should have a special liking for the dairy cow, over and above all other animals. Second, the cattle must be good of their kind and of a variety suited to their work, they must be truly dairy cattle. Third, the farm should be specially adapted to dairying. The dairy farm should be carefully selected, all the requirements of the business being well considered. Fourth, it is well to study the character of the accessible markets and the means of communication; location and the line of dairying to be followed may be largely controlled by the markets.

Like nearly all other occupations at the present day, dairying has become divided into several distinct and special lines. Milk or cream may be produced for delivery to consumers, and this delivery may be direct or indirect. The same products may be delivered to a factory for manufacture into butter or cheese, or the milk product of the herd may be worked up at home and there converted into butter and cheese. The prudent dairyman should first consider which line of business he will pursue. In so doing, he must have regard for all his circumstances—the location, markets, farm, buildings, water and ice supply, the labor at his command—and his own preference, and prospects for profit. Upon his decision as to the particular kind of dairying to be followed should depend the character and composition of his herd of cattle. In making up a herd for this business, no matter what the special line, only such animals as are truly dairy cattle can be considered. (1) Everyone now admits that there is a distinct type or class of cattle, specially adapted to dairy purposes. This class includes various kinds, families, and breeds, but all have the marked characteristics which distinguish the milk producer from the beef producer. To succeed in his business, the dairyman should select his herd, or its foundation, solely from this class—from dairy cattle.

Within the general class of dairy cattle, one can find great variety; one is thus enabled to select breeds or families well adapted to the special needs in view. Some dairy cattle are noted for

(1) Except the English farmer, who finds that the "general-purpose" cow, the "Dairy-Shorthorn," pays him so much better than any "special-purpose" cow, that he keeps to her: and very wisely, too. Ed.



Sheep-feeding off rape—(Dec. 7th, 1884) v. last No. of the JOURNAL.

the quantity of milk they produce ; others for the high quality or richness of their milk, which means butter producers. Some combine quantity and quality in a specially economical way, under some circumstances. There are cows of active habits, which forage well on a wide range of scanty pasture, and will profitably work up the coarser kinds of food in winter. There are others which have proved their capacity for making good returns when more closely confined and subjected to high feeding. Some cows give a great flow of milk for a comparatively short season, and others are noted for an even, steady yield of milk throughout the whole year. The dairyman can easily find cattle, therefore, adapted to his particular wants. As a rule, the different dairy characteristics named pertain to different breeds, so that every dairyman is likely to find some one breed of dairy cattle better suited to his wants than any other. Yet in the matter of breeding, no matter how strong one's convictions, discretion must be exercised. Evidence abounds on every side, and every dairyman that is, or is to be, can satisfy himself as to the cattle he should adopt, if he will but make a proper study of the subject. He need not go far in this country to find the best kind or breed of cows for milk supply, the best for butter making, or the best for the cream trade. There is no special cheese-making cow ; the best butter cow is also the best for cheese (where cheese factories

pay by the test) ; this fact has been demonstrated beyond dispute.

A dairy herd may be formed in two very different ways, and its size and quality maintained. It may be done by buying or by breeding, and these two methods may be combined. The former plan is adopted largely by those who produce milk for town and city supply. Applied in its extreme form, cows are bought when mature and at their prime, judged almost exclusively by their milk yield, are highly fed so as to keep steadily gaining in flesh, and are sold, usually to the butcher, as soon as they cease to be profitable milkers. The bull in this case may be of any kind so long as he gets the cows in calf, and the calves are valued only as causing "fresh" cows, and are got rid of as soon as possible. The first modification of this system is to keep extra good cows for several seasons, and the next, to raise heifers from some of the best milkers to replenish the herd. This way of making up a herd and keeping good its numbers, requires plenty of capital and rare judgment in buying and selling. It can not be recommended to one lacking experience, and even the shrewdest buyer runs great risk of bringing disease into his herd.

The other extreme is to begin with a few well-selected animals as a foundation, and gradually build up the herd to the size desired, by judicious breeding and natural increase. This method takes

time, and time which may be money, but it is by far the safer and more satisfactory in its results, and it must be recognized as a higher grade of dairy farming. A good combination, in starting, is to buy the number of cows desired, and good animals, of the sort determined in advance. If one's means will permit, include a few superior cows, and a first-class bull at any rate. Let the cows selected be such as have had two calves, and perhaps three, so that they may be judged by their own development and yet be young enough to improve and be in full profit for some years. With a herd thus formed, begin at once the work of improvement by breeding and selection. Sell promptly any cow which proves unsatisfactory and replace her by the best increase of the herd, or purchase occasionally an animal which will raise the average quality.

A dairyman can hardly be advised to buy at once a full stock of pure-bred cattle of any one breed, if his sole object and dependence for profit is to be the dairy product of the herd. Such a venture will necessitate large investment, and should include the breeding of registered stock, for sale at remunerative prices, as a part of the business. I should consider, well-bred and well-selected grade cows, of the line of blood desired, to be the most profitable animal for the practical dairyman, or at least the best to begin with. If he is enterprising and progressive, the owner will hardly be content with grades only. He may perhaps begin with only his bull pure bred; presently he will want a registered cow to match, then one or two more. Thus he will steadily and properly working toward a purely bred herd. If the breed chosen is the right one for the object sought, it will soon be found that the more of this blood the herd contains the better. Starting with half bred cows (the offspring of pure bred bulls and dams of mixed or uncertain blood), the next grade, three-fourths pure, will prove better dairy stock, if the bull is what he should be and the increase has been culled. Another step higher is better still, better for the dairy, and so the grading goes on until the blood of the herd is practically pure. The best dairy results may thus be reached, but the herd has a taint. It lacks pedigree. Its increase however excellent in dairy performance, must pass for and sell as grades. The owner feels this, and is pretty sure to gradually replace his well bred cows, almost pure bred, with fully pedigreed and registered animals. This end is reach-

ed sooner and easier by starting with one or two registered females, and, of course, a registered bull. Moderate investment and the lessened risk of loss in the hands of one unaccustomed to handling registered stock, and finding a market for the surplus, doubtless favour grades for the dairy herd. Of course argument and the probabilities of success, based upon the fixed principles of breeding, are on the side of the pure-bred, registered stock. In the hands of experienced men the latter prove the more profitable in actual practice.

In these days any dairyman who wants registered dairy animals of any of the approved breeds can get them if he cares to make the effort. The beginner in registered dairy stock cannot be too strongly urged to buy and breed on the basis of the individual and family merit and dairy record, and not upon pedigree alone. Pedigree is undoubtedly of much value and should be well studied; it is the best guarantee that the calves to come will make good cows. But the pedigree should be supported by uniform excellence in the family, and by evidence of merit in the particular animals bought. Although the investment is greater, there is more certainty of good results, if mature cows are brought which show what can be expected of them, if they have not already made a record, than if calves or undeveloped heifers are selected. It certainly is also economy, having chosen the right breed, to purchase good representatives of that breed, rather than be content with only average or even ordinary animals. Successful dairying has proved that the greater profit comes from the best cows, whatever their kind. This is as true of pure-bred or registered stock, as of common cows. It is better to pay three hundred dollars for three excellent cows than to pay the same amount for four good cows or five which are only fair. A really superior dairy cow of a superior family, with pedigree which gives assurance of calves equal to the dam, if not better, is always worth a large price. Such an animal adds much to the average value of any dairy herd. In buying registered cattle, deal only with men of reputation as breeders and of strict integrity; "the best part of a pedigree is the name of the breeder."

H. WESTON PARRY.

CONTAGIOUS ABORTION.*(Press Bulletin).*

A disease of pregnant animals, by reason of which they did not carry the young to the natural end of the pregnancy, or if they do, the young animals dies soon after birth. It is rarely fatal to the mother, either cow or ewe. The afterbirth is very often retained in these cases.

CAUSES.

Owing to the prevalence and contagiousness, we can assume it is due to a germ. The assumption is borne out by the experiments of Dr. Bang, of Copenhagen, who has isolated a germ which will cause the disease in otherwise healthy cattle. The disease may be brought into the herd by a cow or a bull.

PREVENTION.

Once a cow is infected, little can be done, as far as is at present known, to cure the disease in the animal, but by carrying out thorough disinfection the disease may be kept out of the rest of the herd.

METHODS TO BE FOLLOWED.

1. All aborting cows should be separated from non-aborters.

2. The afterbirth and discharges should be burned or buried (if buried should be covered with fresh lime).

3. The calf bed and passages should be flushed out with some good antiseptic. The following are reliable: Corrosive sublimate, 1 part; alcohol, 20 parts; glycerine, 10 parts; water (clean rain), 2,000 parts; or chloride of zinc, 1 part; clean rain water, 1,000 parts.

The flushing or washing out of the parts should be done with an injection pump (which may be procured through the local drug store at a cost of about \$8.00), or a funnel made of tins with a pipe one inch in diameter and 18 inches long, a right angles to the funnel, may be used. This funnel can be procured at any tin shop for a small sum.

The flushing should be done weekly for three months.

4. The hind parts from the tail to the udder of all the females of the herd should be washed with one of the above solutions once a week.

5. Removed all soiled bedding and burn it. Spray the walls and floors of the cow stable with

crude carbolic acid, 6 table spoonful; water (1 pailful), 10 quarts.

6. If the bull has been used on cows that abort, he must not on any account be used on healthy cows.

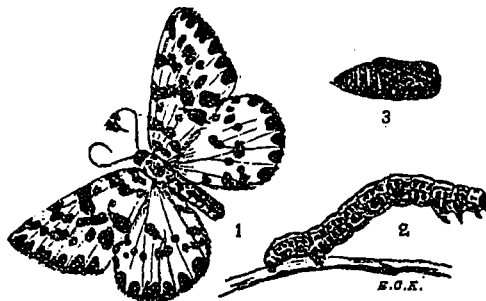
7. As abortion may occur from other causes contagious, such as impure water, unsound food, bad smells, weakness, over exertion or accidents, it will be safer to follow out the above precautions than to neglect them, until the owner is reasonably sure that he has not the contagious form to deal with.

8. Ewes are sometimes affected with this disease and similar precautions must be observed.

9. Cows once affected are difficult to get with calf. The disease tends to run out in a herd in or four years.

10. The treatment outlined is useless unless faithfully performed.

A. G. HOPKINS, Veterinarian.
Wisconsin Experiment Station.

The Garden and Orchard.*(CONDUCTED BY MR. GEO. MOORE).***INJURIOUS INSECTS.***(Continued).*THE MAGPIE MOTH (*Abraxas grossulariata*).

1, Moth; 2, Caterpillar; 3, Cocoon. All natural size.

The caterpillars of this moth, called the "Magpie Moth" from its peculiar markings, occasionally cause serious injury to the gooseberry and currant crops. They are sometimes also destructive to apricot trees, and are frequently found upon the sloe and the blackthorn. The attacks of these

caterpillars upon gooseberries and currant bushes are often confounded with those of the larvæ of the Gooseberry-and-Currant-Sawfly *Nematus ribesii*, but they are essentially distinct. In the first place, the attack of the *Abraxas* caterpillar is not nearly so serious as that of the sawfly larva, and the insects differ materially in every stage. In the winged state there are no points of resemblance, and in the larval conditions the *Abraxas* caterpillars are different in size, colour, and shape, from the grubs of the sawfly. Their habits also are distinct, for the caterpillars of the Magpie Moth live through the winter in the larval state, and are ready to attack the fruit bushes directly there is a vestige of green upon them, whereas the sawfly grubs are hatched from eggs laid by the female flies upon the leaves in the spring, and do not, therefore, appear until vegetation is far advanced.

The Magpie Moth appears late in the summer, and places eggs upon gooseberry and currant leaves, near the midribs, in groups of three or four. In about 11 days the caterpillars come forth and feed for a brief period upon the foliage, which at that time of the year is by no means succulent or attractive. The caterpillar, unlike most others, resembles somewhat curiously the parent, both in distinctive markings and coloration.

There are two pairs of sucker feet and three pairs of claw feet, so that it progresses by a series of loops. It is an inch and a quarter in length when fully extended. The caterpillars either spin leaves together and hiding in them, fall to the ground, or else they drop and get just under the surface. They remain here in the larval state until the spring, when they ascend the bushes and devour the young foliage. When full fed, they turn into chrysalids and the moths emerge from these in due time and place their eggs upon the leaves of the gooseberry and currant bushes in the late summer.

METHODS OF PREVENTION AND REMEDIES.

Warning is frequently given of a coming attack of this insect by the appearance of the caterpillars in the autumn upon the gooseberry and currant bushes, showing that infestation may be expected in the following spring. When the caterpillars have been thus seen in the autumn, the ground beneath the bushes should be covered with finely powdered quicklime or gas-lime and dug deeply in the early days of winter. The fruit bushes

should be previously pruned in order that any caterpillars that have "spun up" on the branches and shoots may be cut away or dislodged. If it is found after pruning that there are many caterpillars on the bushes it would pay to hand-pick them. All the cuttings from infected bushes should be collected and burnt.

In the early spring, and before the leaves appear, the ground round the bushes should be hoed, the soil pulverized with prong hoes, and more lime, or a mixture consisting of two bushels of lime to one of soot, applied.

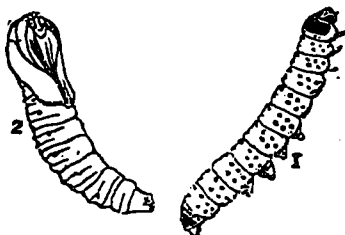
Hand-picking may be adopted also in the spring in gardens and on small fruit-farms where the infestation is serious. But in large plantations this could hardly be carried out.

A mixture of lime and soot thrown upon the leaves of infested trees very early in the morning has proved of considerable advantage. Powdered hellebore is efficacious, and can be put on with bellows made especially for the purpose. But hellebore is most poisonous and dangerous if put on when the fruit is formed. Syringing with soft soap and quassia, at the rate of 6 lbs. of soft soap and the extract of 7 lbs. of quassia to 100 gallons of water, has been found very effective. Many caterpillars are dislodged, and it is found that they do not like the leaves that have been syringed with quassia. Paraffin "emulsion," made with 6 pints of oil and 3½ lbs. of soft soap, mixed well together in 4 pints of water and diluted with 25 times its volume of water, has been used with advantage. This should be well and constantly stirred, and put on with a fine sprayer. It will not, however, do to use the emulsion when the fruit is of any size, as the oil will flavour it.

THE WOOD LEOPARD MOTH (*Zeuzera Æsculi*).

The Wood Leopard Moth is a large and beautiful moth, but fortunately for fruit-growers, it is not very common; though in hot and dry seasons the injuries caused by its large caterpillars are frequently the subject of complaint. The caterpillars bore holes and make galleries in the boughs and branches of trees and feed upon both the soft and hard parts of the wood.

Although this moth is called *Æsculi*, from the horse-chestnut which it attacks and bores, it also damages pear-trees in the same manner and large boughs are frequently broken off which show traces of the borings. Apple-trees, plum-trees, walnut and sweet chestnut are also occasionally attacked. In fact it is found upon most



Female Wood Leopard Moth; 1. Caterpillar, 2. Chrysalis all natural size.

deciduous trees as the lime, birch, sycamore, maple, willow, etc.

Trees are sometimes entirely killed by the *Zeuza resculi*, their trunks and branches being found full of holes and passages running in all directions. As many as seventy have been taken from one apple-tree.

The moth rests in the daytime and flies only in the evening. The female flies slowly and rests in the daytime on trunks of trees or fences. It is remarkable that it is more frequently found near towns than far out in the county, and attacks the trees and shrubs in public parks and gardens.

Large quantities of eggs are laid by this moth. Curtis says that as many as 300 have been laid by one female. They are orange-coloured and oval, and are laid upon the stems and branches of trees. In a few days caterpillars come out and bore into the bark, where they remain feeding until the winter, when they bore deeper into the woody parts of the trees. They remain in larval state for two years, during which time they are feeding continuously. Pupation takes place in the month of May and the moths come out in June. The caterpillar is close upon two inches in length, with deeply divided segments. Its colour varies somewhat, according to the age of the larva, between yellowish white and yellow, with several black spots on each segment; the second segment is larger than the others, and is covered with a wide dorsal plate of a dark brown colour. Its

head is rather small and blackish-brown, and its mouth is furnished with strong jaws adapted for biting hard substances.

Pupation takes place close to the bark of the tree in which larva has been feeding. The bark just over the hole or tunnel is left so thin by the larva than the pupa can force itself through it, and the empty case is found protruding from the hole after the escape of the moth. The pupa is nearly an inch long, brown in colour, and has rows of sharp spikes upon its back, which serve to retain it in the mouth of the gallery during the escape of the moth.

REMEDIES AND METHODS OF PREVENTION.

But little can be done to prevent the attack of this moth, or to check its progress. In the early stages it may be destroyed by poking stiff wire into the holes so as to pierce and kill it; but the caterpillar often takes a tortuous course and cannot always be easily reached by the wire. The hole may be discovered, although it is very small, by the collection of frass and excrement at the opening.

Syringing the holes with mixtures of unpleasant materials, such as carbolic acid or other substances likely to kill or disturb the caterpillars, applied by means of sharp pointed syringes, has been tried, but without much avail, as the insects are generally found embedded in frass, which prevents the noxious materials from reaching them. When a tree is badly infested it would be well to cut it down and destroy the caterpillars. Infested branches should also be cut away and the caterpillars destroyed. Birds are very useful in destroying these moths and eating their eggs. The smallest birds are particularly serviceable in clearing off the eggs.

HORTICULTURAL EDUCATION.

An article in the *Nineteenth Century* for November 1899, by A. Goodrich Freer, Esq., late Hon. Sec. to the Horticultural College, Swanley, England, calls attention to horticulture as a "profession for the educated."

It is only within a comparatively few years that a gardener or farmer was supposed to require much education, the idea being that all he had to do was to carry out certain rules and practices which had been adopted by all gardeners since Adam and without any knowledge of the scien-

tific principles of such rules and practices, and he who would have applied physical science to the culture of the land would have been looked upon as a mere visionary theorist.

At the beginning of the present century a new light dawned upon the profession, and the art of gardening was elevated into a science, and no longer did good results depend upon mere experiment but their attainment could be recorded upon with certainty when the right chemical, climatic, and seasonable conditions were observed and acted upon. It is not to be presumed that every agriculturist and horticulturist is thoroughly educated scientifically, but the more he knows and studies science, the more likely will he be to avoid mistakes in practice, and therefore to be successful; beside which, his profession will be a source of continual interest, and possess a charm to which the mere copyist is a stranger.

The number of books and periodicals now published render the home study of horticulture easy, and this is fortunate, if the young can be induced to take advantage of them, especially in districts where distance from home and financial considerations, would preclude the possibility of their attending college. It would therefore be greatly for the public good if the agricultural and horticultural associations were not only organized for the purpose of competition but also were institutions hold examinations, at stated periods, of these out-door students and grant diploms according to merits. It would not be necessary that each of these institutions should have a staff of professors or even a single professor, but one could be appointed for a certain district in which he could visit each in turn inviting the students to meet him on a certain day which they could pass the examination. Of course, this is merely a suggestion, and it is not proposed in this place to enter any further details of the plan. What we want among the rising generation in our farming and gardening communities, is some plan which will cause them to look upon these professions as of the utmost importance, and to make them, feel that to be a good cultivator of the soil is as noble an occupation as they can be engaged in, and one in which they can be of as great service to themselves, to those who are immediately depending upon them, and to the body politic, as any other.

The study of horticulture is also calculated to aid self culture, and to raise the moral and social

position of the student. The natural phenomena with which becomes in contact tend to lead him to further enquiries as to their origin, cause or effect, and thus the mind is expended, and the interest sharpened.

The advantage to the public of horticultural scientific research and experiment is well exemplified in the following article taken from the *Scientific American* for March 30, 1900.

GEO. MOORE.

The Agrostological work of the American Department of Agriculture.

"Agrostology" is that branch of botany which treats of grasses, derived from the Greek *Agrostis*, Bent-grass. (1) The division of agrostology performs important labors in the Department.

The grasses and forage-plants investigations have been carried on for many years, and the value and the necessity of actual field-work as well as the importance of experimental cultures of grasses and forage-crops which we may wish to propagate and introduce into cultivation, are no longer questioned. Observations in the field have enabled us to understand the forage problem and needs of the several sections of the country and have materially advanced our knowledge of the native plants and forage plants, their distribution, their relative abundance, their value, before cultivation, peculiar conditions of soil and climate, and the means by which they are propagated, and their possible value to agriculture and in the economic arts.

There are in the United States native species adapted to every condition of soil and climate, and selections can be made from among them to meet almost every requirement of the farmer, or the stockman. In order to secure information as to the best varieties of crops to meet the needs of the various sections of the country, it is necessary to study the conditions that prevail; such as the soils, rain fall, drainage and temperatures which govern the development of the plants in a given area. Most of the force of this division has been sent into the field, or special agents employed to learn by direct observation the habits and distribution of the native grasses. Experimental work has been conducted with excellent results.

Among the most interesting and promising va-

(1) Our lexicon gives "a grass that mules feed upon"; Pliny's names of plants are rather difficult to identify. Ed.

rieties tested are Turkestan Alfalfa, from the dry region of Western Asia and North Africa. The field experiments are carried on with the cooperation of prominent farmers and some of the experiment-stations.

Another use for grasses has not been lost sight of, namely their adaptability as sand binders. Driftings of sand in many places impede traffic and destroy cultivation, turning the otherwise fertile land into desert wastes (as in neighbourhood of Lachute in our own province), and, in such cases, grasses, which by the entanglement of their roots prevent the particles of sand being shifted by the wind, are of the utmost value. During the past fiscal year, 6,246 of mounted specimens of grasses and forage-plants have been added to the herbarium collection, the total number being 19,078. Many thousands of specimens have been submitted for identification and between 3,000 and 4,000 determined by correspondence during the year. The cultivation of grasses and forage-plants on the Department grounds has been a source of attraction and has given many of those interested an opportunity of knowing the appearance and growth of a great number of the most important grasses and forage-plants. (2) The Division has distributed a large number of varieties of grass-seeds to various correspondents who requested an opportunity of participating in the work."

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

SETTING HENS AND YOUNG CHICKS.

April and May are the best months for hatching and with the pen of one male and a dozen hens, which have been all cared for during the winter, you should be supplied with plenty of eggs by that time, which may be depended upon to hatch a fair per cent of strong chickens. This is for the north but at the south and west the season is one to three month earlier.

Take a setting hen to a new nest in any building not previously occupied by poultry, place her

(2) The permanence of pastures depends, in a great manner, on the grasses natives to the climate, situation, and soil. Ed.

upon a few nest eggs until you are sure she means business, then give her the eggs to hatch. During the period of incubation feed all corn, giving free access to plenty of grit. Previous to putting her on the eggs see that she is free from lice. There are four or five kinds of lice. Two are found in the poultry houses. What are termed mites are small gray lice that breed in filth and swarm all over the inside of the building. It is this louse that compels many a sitting hen to leave the nest before she has hatched a chick. During the day the red spider louse may be found on the underside of the roosting poles, and in any cracks. At night they are sucking blood from the hens on the perches. It is this louse that cause hens to forsake their house for the trees. These two kinds of lice may be entirely exterminated. First, keep the infested house very clean. Paint perches with kerosene oil, keep them soaked with it so that no louse can live. Also put some oil on the nests on the woodwork of the nest and all supports of the nests. With a force-pump crude carbolic acid diluted with hot water can be used. Spray the inside of the house as long as a live louse can be found. This is the cheapest and best method. There are also two kinds of lice that remain on the hens. I call them head lice and body lice. The first, as the name indicates, are found on or near the head of the fowl. They are responsible for the death of many very small chicks. Later, the body lice also kill many young fowls. There are many ways of ridding sitting hens of lice. I use insect powder and carbolic soap. First powder the hen thoroughly and strew a handful of powder in the nest. Then take the carbolic soap and wet her head and neck with strong suds. During the period of incubation I make three applications, the last just before the eggs are due to hatch.

When the chicks are ready to be removed from the nest, take them to a small yard and give them the liberty of the yard, cooping at night. Feed nothing during the first 36 hours. During the first week, feed bread soaked in milk. Three feeds a day will do but five are better, if you are careful not to give more than they will eat up clean. Give water to drink from the first. The second and third weeks give bread made of corn, meal two parts and shorts one part. After the third week the feed may be scalded instead of baked. Have the meal ground coarsely. It will not be so sticky and will mix more readily. After a few

weeks cracked corn and wheat may be fed at night.

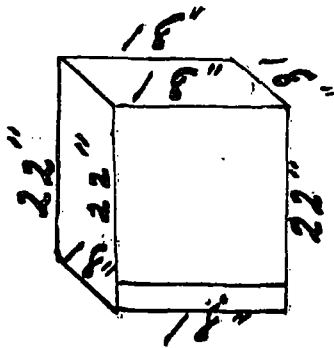
When nearly half grown, feed two parts ground oats and corn, one part wheat bran, and one part corn meal mixed cold, for morning feed. Give whole corn, cracked corn and wheat at night. Feed a little animal-meal from the first, increasing it to a tenth part of the soft feed by the time the chicks are half grown. Give free access to ground rock at all times. Cockerels may be placed in a run by themselves if they become troublesome. Sell them when they become fat.

S. J. ANDRES.

SETTING THE HEN.—THE HEN.

The chick and how to raise it (rational method)

Before setting the hen she should be provided with a suitable place, a place set apart for this purpose exclusively. If any hens are to be set at the same time, a plan which I have found very successful is to put the nest boxes in the floor round the house using a box like the figure here shown.



Each nest should be 14 by 16 inches square on the bottom and from 22 to 24 inches high according to the size of the hen, and each should have some means of confining the hen if it should be necessary. I have used a piece of an old bag in the front of the nest for this purpose, the strip across the bottom of the front should be about 3 to 4 inches wide in order to prevent the nest material and the eggs from being thrown out by the hen when going upon the nest and in turning the eggs. Shape up the sand or dry earth in the bottom of the nest so that the centre shall be about two inches lower than the sides but let the slant be very gradual, cover the dirt with an inch of

hay, straw or anything handy, procure a number of egg gourds or porcelain eggs, capture the intended sitter after dark, carefully remove her to the sitting-room and fasten her in one of the nests, having previously placed the imitation eggs in the nest. If she sits quietly for a couple a days, then good eggs may be substituted for the artificial.

Many make the great mistake (which is often expensive) of giving too many eggs to the hen, especially is this true in cold weather. During warm weather, a hen can take care of more eggs, for it will not make much difference if an egg or two gets partly uncovered for a short time. During cold weather these partly uncovered eggs may get chilled, and then when the hen shifts them these eggs may get covered and other previously covered ones may get left out; thus nearly all the eggs will get spoiled. In general, thirteen fair sized eggs are enough for an ordinary sized hen; it takes a large hen to properly cover fifteen eggs.

Always test the eggs on the seventh (or fifth) day of incubation. If several hens have been set at once, then all the fertile eggs can be placed under one or more hens and the balance of the hens without eggs can be reset, thus saving time and hens. Never use stale eggs as nest eggs, they may get broken and spoil the hen and nest.

There are various "lice preventives" to put in the nests, but we have learned to use the best Persian insect powder we can get. After the hen settles down to business we give her a good dusting—also the nest—taking her by the legs, head down, and sprinkle the powder well into the feathers, using the first two fingers and thumb to grasp the powder with or it may be put into a small tin box with a perforated top and shake the powder well into the feathers. About two days before the chicks are due to hatch repeat the dusting. It is within the lines of fact to state that two-thirds of the mortality among chicks are due directly to the ravages of lice and we therefore cannot be too particular on this point. Have proper coops prepared and ready for the chicks when hatched. I have given in a former No of this Journal a number of coops for that purpose (see fig. No 4 Mr. A. Hunter's coop), it is made in the shape of an inverted V. It should be about 2 ft. 6 inches wide at the bottom and 3 ft. long or deep, with a slat front.

There are several others to choose from that will suit for that purpose and are fully presented.

in the same Journal, a valuable one to keep for reference.

The Chick.

Allow the chickens to remain undisturbed in the nest for twenty-four hours after hatching, then transfer the hens to the coop with the chicks placing not more than twelve or fifteen (according to the season) with each hen. If two or more hens were set at one time then the chicks can be given to one or more mothers and the remaining hens reset. The first feed should be rolled oatmeal or stale wheat bread crumbled finely and fed dry, giving milk to drink when possible or you may moisten the oats and bread in milk using only enough milk to just moisten it. Follow this for three days when the feed may be scalded. This food should contain all the elements of growth and development and the three most easily procured elements may be ground corn, wheat middlings and ground oats (sifted so as to remove the hull) equal parts with a handful of sweet ground bone, scald this mixture with hot water or milk and let stand covered for an hour before feeding so as to let the steam cook it as much as possible. Do not use any more liquid than is necessary to make the mass crumble. Never feed sour or sloppy food. Buy the best food you can, for it will prove the cheapest in the end. Anything and everything is not suitable for poultry of any age. They require sound sweet food and must have it to do well. Feed the chicks four times a day. Give rolled oatmeal or bread-crumbs in the morning and the scalded mash thereafter. A good plan is to have fixed hours for feeding and always feed just at that time. The first feed should be given at six o'clock a. m., (5 o'clock if possible) the second at 10 o'clock, the third at 2 p. m., and the fourth at six o'clock. Every other day give boiled potatoes at 2 o'clock. A little finely chopped onion, top and all, is excellent to give every other day for the first month.

When the chicks have reached five weeks of age, then three meals a day will be sufficient and the night meal may be whole wheat. Occasionally mix in the soft feed a little fine charcoal. Grit is also an important item and for small chicks we mix a little in the soft feed using Mica Crystal or stone grit chick size. The morning feed of oatmeal may be discontinued after the fourth week, and the scalded feed substituted, always feed on a clean board, which should be washed

off every few days. We use a board about three by ten inches round the sides of which we nail on pieces of laths letting them extend above the top side about half an inch. This prevents the food from getting on the ground. Feed at one time only what will be eaten in, say, ten minutes. If any should be left over carefully scrape it up and give it to the pigs.

Give clean water in earthen saucers twice or three times a day, cleanliness is a very important item. If there is any hole in the ground where stagnant water stands fill it up. After the chicks are eight days old, feed whole wheat most of the time, but of course oats, buckwheat and barley fed alternately are better. Corn should be fed sparingly for it is deficient in bone and muscle development and we must feed for growth rather fat. There is great danger, as the pullet reaches maturity, in getting her over fat. It will surely retard egg production and proper development. I am presuming that these pullets are being raised to supply you with early fall and winter layers. Therefore, just as soon as the weather permits, say, June 1st to 15th they should be removed to a coop and have this coop out in the field as far from the old fowls as possible. Build these coops out of light material and have them about 4x8 feet on the ground. The front should be three feet high and the back two feet. Such a coop will provide roosting-room for 50 chicks. The front can be left open and can be made with a door hinged at the top. If the nights are cold, it can be let down and during the day it can be raised and thus afford shade for the chicks.

Two or three broad flat roost-poles, four inches wide, can be placed near the back moving it to the fresh ground every day or two. If old lumber is used to build the coop then it should be covered, roof, back and sides, with heavy roofing paper. Build enough houses so as to accommodate all the pullets. The cockerels should be placed by themselves and sent to market just as soon as possible. If the sexes are not separated neither will make a satisfactory growth and growth is what we should aim at. When the pullets are three months old if they are out on the range, then the feed can be given more sparingly, for they should be able to gather at least half their food. The morning feed can be wheat, oats or barley, but only give them enough to take off the sharp edge of their appetite. This will send them out looking for insects, seeds, etc., and exercise is th

most important consideration of all. The night feed (do not feed at noon) should be all they will eat up quickly and consist of one of the meals before named. Do not attempt to force the comb (undue early laying) for growth practically stops with the first egg. Get a good sized frame first and then feed for eggs. Thus by gradual steps we come down to the laying period which ought to begin by October or November and continue right through until the following fall, making due allowance for the climate and the time at which they are hatched. Plymouth Rocks or any of the American brands if of a good laying strain bred for utility should begin to lay at six months old. I have had pullets laying at five months old and will next take up the subject of the hen, the laying period, and the different methods of feeding for eggs.

S. J. ANDRES.

The Horse.

MONTREAL HORSE SHOW.

The first official Horse Show was held in the Arena Rink on Thursday, May 3, and two following days.

As is often the case with initial ventures the attendance on neither day was of a very satisfactory character as regards numbers, though we hear promoters are satisfied, which, after all, is the great thing.

Lord and Lady Minto were in attendance, the former formally opening the show, and here it should be remembered that not a man in Canada is so fit, apart from his position, to be the prime factor in such a function, for there are very few men who know more about the horse than Lord Minto.

An address of welcome was read to His Lordship from whose reply it is only necessary in the interest of our readers to quote the following, and to add that Major Dent has secured 500 horses in Montreal, but what troubles us is the query "Were one-tenth of them bred in Quebec, and if not, why not?"

The Governor-General said, in part:

"Montreal is popularising the horse; fostering a valuable industry, while abstracting (sic) a splendid entertainment as manifest to-night. In this connection it might be well to consider the really

grand field our Canada offers for the development of every style and class of that most useful animal, the horse. Whether a hardy type — military or commercial — or for the stock farm, Canada can produce the highest grade of a horse. To encourage, then, a resource of our country is most commendable. Canadians have always shown ardent concern for their horses. The Canadian public has ever shown its interest in good horseflesh. Canada will supply horses to the Imperial Army as she has done men. From Canadian shores will be shipped largely the army's remounts in the future. The improvement of Canadian bred horses should enlist serious thought.

"Major Dent, commissioned by the British authorities, is here to purchase animals of the right sort for army purposes. Artillery horses of bone and substance, and cavalry horses of distinct quality, are what he wants and what Canada can supply, in quantities by judicious stock-raising. I hope he will succeed in establishing Canada's reputation as a supply source of desirable horses of quality, and in quantity. High-class stock-raising should be featured (sic) in Canada."

How often have these truths been promulgated in this Journal! And if this is true of the whole Dominion, how much more is it a necessity in this Province, that the breed of all our animals should be improved.

The jumpers were greatly handicapped by the electric light, and also by the short space between the jumps; but still in some instance of bad jumping and refusals the fault was not that of the horse, but of the rider.

Class 9 for horses not exceeding 15.3 to be shown in cart, gig, or phaeton, turned out 18 competitors and they were really a very good lot, and no fault could be found with the judges in placing the first three, all coming from the stables of Crow & Murray of Toronto.

In class 3, for standard bred roadster stallions, *Silver Plate* easily took the palm, and was a beautiful animal.

There was a good competition for cabmen's best turn out, the prize going to Toronto by the aid of a very swagger turn out. There were two handsome cabs—really up to date turn outs—but which were under horsed.

Versatile thoroughly deserved the ribbon in the class for thoroughbred stallions, but we certainly think that *Domitor* deserved second honours.

Class 33, for roadsters, brought out a number of

competitors, none of a very high class, a local horse shown by H. H. Learmont, getting the prize.

In the Clydesdale class, Sir William Van Horne took 1st prize, whilst Mr. Geo. G. Stewart of Howick came a good second, though neither horse can be considered really first class.

The Toronto harness horses were far in advance of any other entries both in get up and in working, therefore it is not to be wondered at that the prizes went there. No doubt if there is another show held in Montreal, the local talent will make use of many tips that have been shown them by the Westerners.

Class 5, for hackneys, introduced perhaps as good a horse as there was in the show in Dr. Watson's *Bell Boy*, who easily won the prize.

Class 2, for horses suitable for cavalry purposes 15 2 and over, brought out 10 contestants, and it would have been a liberal education, for those of our readers who breed horses, to have seen them, and it only proves that if such can be reared in the country, why not hundreds more, for which a high price would be given.

A feature of the show was the masterly manner in which the two New York judges handled the "ribbons," when putting some of the harness horses through their paces.

We cannot pass the jumpers by without mentioning a bay mare *Pearl*, exhibited by Mr. George Pepper; not much to look at perhaps to the ordinary observer but made on the lines of a jumper, which promise she carried out by taking her fences in faultless fashion. In mentioning her owners name, it is safe to say that any success that attended the management of the programme was entirely due to Mr. Pepper, who deserves the thanks of the committee for his work.

My Fellow, a light weight hunter, shown by Mr. Adam Beck, is an uncommonly useful and stylish looking animal and would fetch a good round price in England: *Westminster Belle*, shown by the same gentleman, is worthy of more than passing mention.

Classes for cabmen's turn out, was rather a misnomer for the generality of the entries were not what we are accustomed to see on the stands.

Taken all in all the show of horses, as we have said, was a good one; far better in fact than could have been expected, and deserved a greater amount of patronage from the public. From a social point too, the show was a success, but the

miserably cold weather militated to a very great extent against the showing off of gowns which the ladies had no doubt donned for the occasion.

Doubtless, with the experience gained by the initial venture, the management will be in a more workmanlike shape, though in this no great amount of fault can be found.

A great feature of the show was the satisfactory disinfecting done by Jeyes' Sanitary Compound Co., whose manager, Mr. Bragg, was in attendance to give all information in regard to "Jeyes" desinfectants, the beauty of which being that they are non-poisonous, although most powerful in their actions.

We can only trust that Montreal will have another Horse Show next year and that the promoters will meet with a greater measure of support.

W. R. GILBERT.

SORE SHOULDERS ON HORSES.

As a rule, this trouble lies in the "breaking in" of the horses' shoulders. When the breaking in is once successfully accomplished, with careful watching the shoulders will stand the hard work well. The young and tender shoulder needs plenty of air, and even when standing the collar with a pad does not permit the air to cool the heated parts. Very often in the spring horses are put to work that have not had a collar on for months. Many of these will have sore shoulders that will remain with them throughout the busy season.

It is not easy to obviate the effect of sudden and hard work on tender shoulders, as the horses cannot be laid off when once the busy season begins. A writer in the *National Harness Review* has the following to say in regard to this matter: "Many will become sore under hard collars, many under sweat pads, then holes will be cut in the parts over the sore places, the hard collars on same will be removed, and larger ones with pads and holes substituted; some will receive applications of axle grease and continue their work with shoulders becoming worse; some collars will be cleaned each night, more will not; a few fortunate ones will have their collars removed at noon and cleaned, and instead of softening axle grease, will have their shoulders (whether sore or not) washed with an astringent, such as a solution of one ounce tannic acid dissolved in a quart of water; this will be repeated at night for a short time and will require from five to ten minutes per team per day. The shoulders so treated will not become sore, or, if already sore, will quickly heal, and they will be able to pull with comfort much heavier loads than can the horse whose shoulders are as raw as his willingness and patience are great." Ex.