Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. 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 filming, are checked below.

L'Institut a microfilmé 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 filmage 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
- ☑ 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
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ 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 filmées.

- ☐ 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
- ☑ Continuous pagination/ Pagination continue
- ☐ Includes index(es)/ Comprend un (des) index

  Title on header taken from:/ Le titre de l'en-tête provient:

- ☐ Title page of issue/ Page de titre de la livraison
- ☐ Caption of issue/ Titre de départ de la livraison
- ☐ Masthead/ Générique (périodiques) de la livraison

☐ Additional comments:/ Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
										✓	

THE CANADA FARMER

VOL. XI. No. VI. (NEW SERIES.) | TORONTO, CANADA, MARCH 16, 1874. | $1.50 PER ANNUM. SINGLE COPIES 8 CTS

The Field.

Preparation of Potato Seed.

A correspondent enquires :—"What is the proper method of preparing potato seeds from the potato balls or apples, as they are called, so as to have them fit to sow? Should they be washed out of the glutinous stuff in which they are enveloped, and then dried, or merely squeezed out without washing, and then dried ?"

The method usually pursued is to wash the seeds clean from the pulp, and then thoroughly dry them before sowing. In the fall, the berries or apples of the old stock are hung in a warm room, and toward the end of winter the seed is washed out, dried, and preserved in a dry place, in cloth or paper bags, until sowing time.

Some prefer taking the ball or apple when perfectly ripe, drying it, and disengaging the seed by rubbing it out with the hand When this course is taken, the seed is preserved in bags, in a dry place, until spring, precisely as is done on the other method.

We infer from the tenor of our correspondent's queries, that he has the balls or apples in their entire state, and that they are more or less moist, so as to admit of squeezing. He will do well at once to wash out the seed, dry it, and have it ready for use.

Though our correspondent's enquiries extend no farther, we may as well briefly mention the methods practiced in raising the young plants, and obtaining tubers worthy of culture. In order to get as large tubers as possible the first year, some have recourse to hot-bed culture Very moderate heat is got up, and the seed sown in drills, about half an inch in depth and nine inches apart Water is given pretty freely, and earth drawn about the stems of the young plants until they are a few inches in height, when, having been gradually accustomed to the ordinary temperature of the air, they are transplanted to the open ground, set in rows, and earthed up in the usual way The only advantage of this plan is that the seed being sown earlier, the young potatoes grow to a larger size than when the entire growth is obtained out of doors.

In out-door culture, it is usual to sow the seed a little closer than in the hot-bed. Half an inch deep and six inches apart, is the common rule The plants are weeded so soon as they can be distinguished, and a little earth is drawn up to their stems When three inches in height, they are transplanted into hills, sixteen inches apart each way, and earthed up two or three times during their future growth.

The tubers of every seedling should be kept separate. Scarcely two will be of similar habit and quality Most of them will be comparatively worthless. A few will be good, and still fewer excellent. Only such should be preserved as are of superior size, flavor and productiveness, It has been confidently stated, as an indication of these qualities during the growing stage of the plant, that a rough, uneven surface in the foliage, which in excess constitutes "the curl," is an unfailing sign of a good potato, while smooth and polished leaves indicate inferiority, if not worthlessness.

It requires no small patience and judgment to originate a potato really worth cultivating Success must not be too readily taken for granted. A variety should be thoroughly tested before its excellencies are blazoned forth in advertisements. Any one who undertakes to experiment in this line of things will arrive at appreciation and admiration of the persevering labors of others who have given choice varieties of potatoes to the world, before he will achieve distinction in this direction himself We do not make these remarks to discourage endeavors by any means, but simply to suggest to experimenters the wisdom and propriety of counting the cost of the undertaking What man has done man can do, and just as there are as good fish in the sea as ever came out of it, so assuredly there are as good potatoes to be originated in the future as have ever been produced in the past, and possibly better.

The Waste of Fences.

We commend the following sensible article from the *N. Y. Times*, to the serious attention of our readers. It deals with a subject to which we have often adverted, and to the practical consideration of which the entire farming community must sooner or later wake up:—

It is certainly within the bounds of fact to state that the absolute cost of fences in the United States is equal to the value of all the live stock kept upon the farms But, unfortunately, this vast sum does not include the annual loss arising from the waste of land consequent upon our costly system of fencing, which, including the damage done to crops by the encouragement of weeds and their encroachment upon our fields, will, doubtless, reach every year to fully six per cent. upon the cost of the fences, and thus will represent a capital sum equal to that cost Then the value of the fences, upon the whole, and their annual cost, may be estimated as equivalent to double the value of all our live stock. The Commissioner of the Agricultural Department, in his last monthly report, estimates the cost of fencing a farm of 100 acres in Pennsylvania, with chestnut posts and rails, at $1,610 62, a sum actually far in excess of the average value of the stock kept on farms in that State. We, therefore, claim for our own estimate a very close approximation to the actual facts.

When we come to realize this ruinous expense is in large part unnecessary; that it is, in fact, maintained in defiance of common sense and better knowledge, and that its abolition in a great part is entirely and easily practicable, it becomes matter for astonishment that such a costly system should be continued No wonder that farming does not pay What business can be made to pay when the principles of economy are so defied?

In our article last week we spoke of this waste as being one of the first that should be remedied under a system of improved farming We wish to point out how this has been done, is how done, and may be done. There are two ways in which this wasteful system may be either totally or partially abolished. One is, by following the soiling system of feeding and confining the stock altogether to yards, thus entirely doing away with the need for inside fences, and the other by fencing off a field which is used for pasture, and removing all other inside fences. At the outset we are met with the objection that soiling stock requires so much labor that it is not possible for the poorer farmers to follow that plan. But we have passed through extensive districts in France and Germany, where the farmers are much poorer than any here, and cultivate only very small farms, or rather patches, seldom equal to twenty acres each, and, curiously enough, they agree that they cannot afford to do anything else with their stock but shut them up, and grow, cut, and carry feed for them, to be consumed in the stable or the yard In their case it is "their poverty and not their will consents." and they adopt the system because they cannot afford any other. For many miles through the richest and most closely-populated country in that part of Europe, the boundaries between the farms are low, narrow banks, mere furrows covered with grass or clover, and no other fence is visible, not even upon the roads. And yet the choicest dairy products are there made in abundance At the same time it is the boast of the farmers who cultivate with most success and profit the high-rented farms in Great Britain that their land all lies within a ring fence, with nothing to obstruct its cultivation. It may, therefore, be taken as demonstrated, that so far from it being impossible for the poorer farmer to keep his stock upon what is known as the soiling system, it may be accepted as a good reason for his poverty that he keeps his stock in any other way. It must be understood that we refer to these cases in which the farming is mixed, and where land is scarce and high, and not to those in which sheep farming is carried on, or where the dairy is a special pursuit, and pasturing altogether followed, nor where land is so low in price that a small crop upon a large area is for the present more desirable than a large crop upon a small area.

Wherever it is desired to farm with the greatest economy we would recommend that all interior fences should be removed, a simple waggon road or path being maintained between them, and sown to clover and grass, which is mowed as any other crop, and as far as possible that a portion of the farm most conveniently situated for the purpose should be appropriated to a succession of crops, which should be devoted to the maintenance of the stock in sheds and yards The good results of this system have been found to be : First, an actual saving of time and labor in growing the feed and feeding it; second, a better yield of milk from cows, and of beef or pork from feeding stock, and better health in all the animals subjected to it, third, an immense gain in the quantity and the quality of the manure saved; fourth, a greatly increased product from the same area of ground, and, lastly, but not least, a far greater subordination of all the business of the farm to methodical and consequently easy and profitable management. When we assure our readers that our own experience has resulted in the plentiful feeding of one cow upon the product of one acre for the whole year, and that others who have fed their stock upon this system have done even better than that, it is to be hoped that some enterprising farmers at least, who are looking to the most profitable management of their farms, will, as soon as may be, inaugurate this system, and give an example of its benefits to their neighbors; and in so doing help to show that the present great waste of fences need exist no longer.

A Cheap Way to use Phosphates.

Prof. S. W. Johnson gives in the N. Y. *Tribune* a method of using phosphates, whether refuse bone-black, Charleston, or other mineral phosphates, ground fine, without the expense of dissolving them in sulphuric acid, by composting them with decaying vegetable or animal matter—best with stable manure He proposes that the farmer, when he collects his manure into piles, or handles it over, shall sift the ground phosphate over and mix with it in the proportion desired to make it efficient as a fertilizer The action of this decaying vegetable matter will be to more or less dissolve the phosphate and render it soluble in water and thus capable of being assimilated by plants. He instances the case of phosphates of a low order applied in France without any effect except upon lands with a large proportion of humus, and here it produced a marked benefit, owing to the solvent power of humic acid found in the soil. He instances the experiments of Dr. Heiden, Director of the Agricultural Experiment Station Pommritz, in Saxony, the result of which demonstates the action of compost, especially of fresh stable manure on native phosphates:—

On the 30th of May, 1870, he made three compost heaps, as follows:—

1. 10 cwt.* of phosphorite, 10 cwt. of dung heap liquor, and 36 cwt. of soil
2. 10 cwt. of phosphorite, 20 cwt. of dung heap liquor, and 36 cwt. of soil.
3. 10 cwt of phosphorite, 10 cwt. of stable dung liquor, and 36 cwt. of soil.

The phosphorite contained but fourteen and one-half per cent. of phosphoric acid and fifteen and one-half per cent. of oxide of iron, and was accordingly none of the best. The heaps were shovelled over July 28, and remained until March, 1871, when they were worked over again. In July, August, and September, 1871, they were also each turned and mixed, the last time very carefully, and finally were used to manure the rye field. Each compost was applied broadcast to a Saxon acre, equal to one and three-eighths English acres. The fields were ploughed, and on Oct. 6 the rye was sown. Unfortunately the acre that was intended to remain without manure was manured with twenty tons of stable manure The remainder of the field, two and one half Saxon acres, received eight cwt. of bone-dust, and three cwt. of ammoniated superphosphate, containing nine per cent. each of nitrogen and of soluble phosphoric acid. The yield on the three trial plats and the average yield of the remainder of the field, as well as the gain of the former over the latter, were as follows:—

	Yield of Grain	Gain
Trial plat 1.....	2,781 lbs.	469 lbs, or 20 per cent
Trial plat 2.....	2,851 lbs.	539 lbs., or 23 per cent.
Trial plat 3 ...	2,993 lbs.	680 lbs, or 30 per cent.
Field.....	2,312 lbs.	

The greatest gain was in the use of compost, with stable manure, and was thirty per cent. above the crop manured with stable manure and superphosphate. In two other trials the uncomposted phosphorite, applied to oats and potatoes at the rate of ten per cent. per acre, showed no perceptible action.

Each of the trial plats received 160 lbs. average of composted phosphoric acid. The two and one-half acres treated with bone and superphosphate received, per acre, eighty-four pounds of phosphoric acid in the bone, and twelve pounds of soluble phosphoric acid in the superphosphate, or a total of ninety-six pounds The acre dunged with stable manure received from ninety to 100 pounds of phosphoric acid, of which one-third was soluble in water, judging from Voelcker's analyses. The experiments are, therefore, decisive, and, taking the increased crop into account, show that 160 lbs. of phosphoric acid in composted phosphorite had the same effect as was exerted by 120 to 130 lbs of phosphoric acid in the bone-dust and superphosphate, and in the stable manure.

The result of these trials is so strong evidence of the fluxing power of stable manure that I should anticipate that farmers would often find it advantageous to prepare special composts, after the pattern given by Dr. Heiden, for use on soils or crops requiring an active phosphatic fertilizer

But if this mode of using phosphates shall prove satisfactory for ordinary crops, it will not supersede the use of the dissolved or acid phosphate for root crops, and especially turnips. The acid phosphate has a rapidity of action that puts the turnips past the fly, and renders it a certain crop. And any crop that requires a rapid growth, and to which phosphate is a stimulant, will be more successful with the superphosphate than with the slow-acting pulverized phosphate, which will depend upon the solvent powers of vegetable and animal matter in compost or the soil.

* The cwt, 100 lbs avoirdupois

Experiments with Oats.

Professor Daniels gives the following results of experiments with different varieties of oats last season on the Experimental Farm of Wisconsin University:

Comparison of Varieties

Adjacent plats of one-half acre each were sown, May 27th, to the following varieties, two and a-half bushels of seed to the acre:

Birlie

One bushel of seed weighed 39 8 lbs. Harvested August 26th. The straw was very rusty, and contained no grain. The very heavy rains of late June injured them.

Goldenian

Weight of one bushel seed, 31 2 lbs. Harvested August 9th Weight of straw and grain, 1,798 lbs. Weight of grain, 185 lbs. Weight of one bushel, 34 lbs. Yield per acre, 11 6 bushels. Percentage of grain to weight of straw and grain, 10 3 One pound seed yields 4 7 lbs.

Black Norway.

Weight of one bushel of seed, 31 4 lbs. Harvested August 14. Weight of straw and grain, 2,268 lbs Weight of grain, 460.5 lbs. Weight of one bushel, 27 lbs. Yield per acre, 30 bushels Percentage of grain to weight of straw and grain, 20 63 One pound seed yields 10.7 lbs.

White Norway.

Weight of one bushel seed, 29.6 lbs. Harvested August 14th Weight of straw and grain, 1,914 lbs. Weight of grain, 318 lbs Weight of one bushel, 27.5 lbs Yield per acre, 19 9 bushels. Percentage of grain to weight of straw and grain, 10. One pound seed yields 8.6 lbs.

White Schonen

One bushel of seed weighed 26 4 lbs. Harvested August 14th Weight of straw and grain, 1,972 lbs. Weight of grain, 548½ lbs Weight of one bushel, 26 lbs, Yield per acre, 34¼ bushels. Percentage of grain to weight of straw and grain, 22 2. One pound seed yields 16 6 lbs.

Mixed

This seed is the product of the mixture, in 1871, of equal parts of Black Norway, White Norway, Surprise, and common oats. One bushel seed weighed 28 lbs. Harvested August 13. Weight of straw and grain, 1,598 lbs Weight of grain, 339 5 lbs. Weight of one bushel, 28 lbs. Yield per acre, 29 2 bushels

Probstein.

A plat containing 105 square rods was sown May 26th. Weight of one bushel of seed, 30 lbs. Harvested August 12th Weight of straw and grain, 1,818 lbs Weight of grain, 514 lbs. Weight of one bushel, 29½ lbs Yield per acre, 24 3 bushels. Percentage of grain to weight of straw and grain, 28.27. One pound seed yields 8 8 lbs.

Surprise.

Sown at same time, upon a plat of same size as that sown to Probstein. Harvested August 13th. Weight of straw and grain, 2,078 lbs. Weight of grain, 337½ lbs. Weight of one bushel, 30 lbs. Yield per acre, 16 bushels Percentage of grain to weight of straw and grain, 16 1. One pound seed yields 5.82 lbs.—*Ohio Farmer.*

Managing Stiff Clay Soil.

While clay is the best soil we have for the production of grass, it cannot be made profitable for continuous cropping like sandy land, sand loam or even clay loam. After two or three plowings it becomes compressed, heavy and comparatively unproductive, unless considerable pains is taken to keep it up Clay soil gets into a condition that is considered sterile, many times, when it has not lost its fertility, but becomes too much compressed to allow the circulation of air through it, and the roots of vegetation to ramify and take up the nourishing elements it contains. Heavy clay should then have the benefit of long or coarse manure when under the plow, and should be worked with special care to make it mellow and loose. We believe that more land of this nature has been injured by being plowed too wet than from any other one cause, and this one damaging influence should be obviated let circumstances be what they may. If the spring is too wet to permit plowing at any other time than when the soil is wet enough to stick to the plow, or when moulded into any form by the hand will remain so, give up the crop intended to be grown upon it, and leave the land undisturbed, or use it for a later crop.

We once had a heavy piece of clay land that would produce abundantly when well worked up, but the labor expended to raise a crop was fully equal in value to the crop received, and it was resolved to try an experiment Sand and creek washed gravel was drawn, and a piece of about half an acre covered to the depth of three or four inches. Top of the gravel was put a good coating of dried plaster from the walls of a large public building that was being repaired; over this a coating of leaf mold and the whole plowed in, cross plowed and thoroughly mixed up with the soil, and the result was the land became heavier, stiffer and less productive than before. The combination of the sand loam and lime appeared to make a cement, and harden the whole mass After successive fall plowing and winter exposures, the soil became submissive and productive, but the experiment was not a paying one. Have experience coarse manure plowed under and fine manure harrowed in at the surface brings the best results, where any fertilizers or invigorators are used, but the best course of all is, to always produce from sod land; that is, never keep a piece under plow until it becomes heavy; by a proper course of alternating between fields and frequent seeding down, goods crops may be raised with much less labor and expense and much less manure than the course too generally adopted—continuous plowing and manuring.—*Ohio Farmer.*

Experiments with Fertilizers.

For five years past the Cirencester (Eng.) Chamber of Agriculture has been conducting a series of experiments upon the comparative value of the different commercial manures. At a late meeting of this Association, Prof. Wrightson made a long and apparently exhaustive report with a summary of the results of these experiments, which we find published in full in the *Wilts and Gloucestershire Standard.* The tables of results are too long for our columns, but we give a condensed summary, which may be of value to those of our readers who use the commercial fertilizers mentioned. The crop grown in 1873, was turnips (Swedes); the experiments were made on twelve different farms, on widely different soils, and of course the separate results were different. The tables do not state of what kind of soil the different plots consisted, so than a general summary is all that would be of value here. The manure in all cases was drilled in with the seed.

	Kind of Manure used	*Product per Acre.* Tons.	lbs.
1	Peruvian guano, 3 cwts per acre	13	240
2	" " dissolved, 3 cwts. 60 lbs. per acre	14	1,100
3	Mineral superphosphate, 3 cwts. per acre,	15	700
4.	{ Mineral superphosphate, 3 " " Peruvian guano, 3 " "	17	280
5	{ Mineral superphosphate, 3 " " Organic matter, ½ " "	15	1,100
6.	{ Mineral super, 3 cwts., potash salts, 1 cwt., Nitrate soda, ½ cwt. organic matter, ½ cwt.,	16	384
7	{ Organic matter, ½ cwt; nitrate soda, ½ cwt; Potash salts, 1 cwt	10	868
8.	Unmanured plots	9	820

The number of turnips per acre were counted, and the effect of the different manures upon germination was very plain. No. 1, in which guano alone was used, had only 9,940 plants to the acre, while No. 2, on which the guano was put in solution, had 900 plants more on the acre. The unmanured plot—No. 8—had 14,640, and No. 3, which was manured with superphosphate only, had 16,360 plants to the acre. The size of the turnips was greatest on plot No. 2, while No. 1 and No. 4 were just a little less. From this it appears that while the guano killed a portion of the seed in germination, yet the size of turnips was so much more increased that the yield was the largest in No. 4; and taking all the plots upon which guano was used, as against all the rest, the guano was the best manure for turnips. The average weight of turnips on the guanoed plots was 2.73 lbs. each, while on the plots manured with the superphosphate it was 1.9 lbs. The average on the unmanured was 1.33 lbs. The average on No. 6, where potash was used, was 2.1 lbs.; the number of plants to the acre was 15,740. The yield of No. 6 was second only to No. 4.—*Country Gentleman.*

Grasses and Forage Plants.

Aftermath.

We are confident, both from the experience of years and the deductions of science, that aftermath is not sufficiently valued, and consequently is not carefully secured in this country. Farmers are wont to regard it as light and foggy stuff, and we have heard them speak of it as wortaless, comparing it to the foam of beer. We have induced some of these unbelievers in the rowen crop of hay to try some of it in feeding young stock, sheep, and milch cows, and we never knew any one to make a thorough trial who was not convinced of its virtues. Living as we do near a manufacturing village, where we can obtain night-soil and other fertilizers in abundance, we have found it more profitable to sell hay than to feed it to stock, but we seldom meet with a customer who does not prefer the first crop. The villager says: "I have but one cow, and I want to feed her well and give her strong hay." Occasionally, a customer who has once fed the aftermath, and found how much more milk it produces, and what a sleek, healthy look it gives to a cow, inquires for the second crop; but for a dozen years past our uniform practice has been to sell the first crop, except what we needed for horses, and feed out the rowen to cows; and we know no hay that will keep them in so good condition, or that will produce so much milk.

If there is anything to be learned from the instincts of the animals, and we have no doubt there is, we may certainly infer that there is more virtue in the second than in the first crop of hay. We have often tried putting before them the two kinds, and they uniformly choose the aftermath, and if they have been fed for a time on the latter, and a feed of first crop is placed before them, they will smell of it and turn up their noses, plainly intimating, "This is not exactly the thing we like. Can't you give us something better?"

Mr. Flint, Secretary of the Massachusetts Board of Agriculture, in his admirable report on grasses, lays down this principle: "The object of the farmer in securing his hay is to make it most like grass in its perfect condition." The principle will not probably be denied by any observing farmer, and we submit whether the aftermath does not come nearer to grass in its perfect condition than does the great majority of the first crop. When cattle are allowed to graze freely in a large pasture they seldom crop the dry, mature grasses, but uniformly prefer the fresh succulent food, and it is only when half starved that they will graze where the grass is tall and mature.

The nutritive substances in grass are mostly those which are soluble, such as sugar, starch, &c., and these are found to be most abundant when the herbage is young. After the seed has matured, and, indeed, before this time, the herbage is converted into woody fibre, which is about as insoluble as so many old chesnut rails. We would not be understood as affirming that dry, mature hay and straw are worthless. Animals have the power of digesting a greater or less proportion of that part of their food which is insoluble in water. The saliva and the gastric juice have more power of solution than common water, and hence Mr. Sinclair's experiments in testing the value of the different grasses at different stages of their growth, by boiling them till everything soluble was extracted, were defective. By evaporating the solutions and weighing the dry matter thus obtained, he considered that he secured all the nutrition, and that the weight of this dry matter represented the values of the grasses; but the vegetable fibrine, casein, and other nutritious substances are insoluble in water, and there must also be more or less insoluble saline matter in the dry, mature herbage.

Granting that there is some nutrition in the herbage of mature hay and straw, and that all the virtue is not concentrated in the seed, as some maintain, still this does not affect the conclusion that young grass is better than old, and that the aftermath is not more soluble for some kinds of stock than the first crop, as the latter is most generally secured. If the first crop is cut before the virtues of the herbage have gone into the seed, and before the stems have turned brown, showing that the sugar, starch, &c., have turned into woody fibre, then the distinction between the first cutting and the aftermath becomes less marked.

But do not cattle eat more rowen than the first crop? asks some doubting Thomas. Certainly they do, and they will also eat more good hay than poor, just as any sensible man makes a more hearty meal from sweet bread than from sour. If we should feed our cattle on musty corn stalks, they would eat less than when fed on first-class hay, but this does not prove that the stalks are more nutritious than the hay. We love to see cattle eat heartily, and the more they eat the more beef and milk we expect in return. The art of feeding consists in furnishing stock with something which they will relish, and which will cause growth, or fat or milk, as the object of the feeder may be, and if the aftermath will effect one and all these ends, there is no loss if the cattle do eat more of it than of the first crop. Boussingault, who estimated the nutritive value of the vegetable substance employed for fodder according to the proportions of nitrogen they contained, considered seventy-five pounds of aftermath to be equal to 100 pounds of hay made from mixed grasses cut at maturity, as by analysis he found the aftermath to contain 1·54 per cent. of nitrogen, while the hay contained only 1·09 per cent. This theoretical conclusion may not be sustained by practical results, as the amount of nitrogen is not a true criterion for the feeding value of hay, but farmers have very generally concluded from their experience that early cut hay, which is quite similar to aftermath in its composition, will produce more milk and beef than that cut at maturity. Now, if they will give the aftermath a thorough trial, they may come to a conviction of its value as they have to the value of early cut hay.

By cutting the first crop in June or early in July, before the seed has matured and drawn heavily on the soil, the rowen crop starts quickly, and will be ready for cutting in August, so that a third growth will have time to start, and make a protection for the roots as well as give them vitality. The labor of cutting two crops of grass is certainly an objection to the plan of harvesting the aftermath; but with a mowing-machine, tedder, and horse-rake, there is less labor in securing two crops than formerly in securing one, and the only question should be, will this labor pay? This can be ascertained by trial, and we would like to see more experiments made in this direction.—ALEXANDER HYDE, *in N. Y. Times.*

How Corn Grows.

Every one who reflects at all on what he sees, must have wondered why it is that some kinds of vegetation will grow so much larger than others in the same season, though every circumstance that has any relation to cultivation evidently is just the same. The corn-plant, for instance, grows tremendously as compared with the wheat, or some grasses; and the total weight per acre is perhaps greater than in the case of any other farm crop that grows.

Of course there are constitutional peculiarities which in a measure regulates this, and which "no feller can find out," be he never so great a philosopher. The young calf will grow tremendously more than the young mouse, though each may have as much light or heat or food as it may need. But we note that some person in Germany has been looking into these matters, and he has come to the conclusion that though these matters are in the main constitutional, there are still certain reasons for this, and in the plants one of the leading of these agencies is a capacity for evaporation.

It seems, according to two views, that plants take up their food with their liquid through the roots: and that as the moisture evaporates through the leaves, it leaves the solid matter essential in plant structure behind. The more evaporation, therefore, the more solid matters are left to make organized matter out of. He finds the corn-plant one of tremendous evaporating power, and thus we may account in some measure for the rapidity with which it builds itself up.

A very singular point in the essay to which we refer is the belief of the writer, that heat has nothing whatever to do with drying the moisture out of a healthy plant. The idea he has is like this: If we take an apple and cut and dry it, the moisture escapes. The apple dries. But the same apple on the tree and growing would not be affected in that way by heat. Our drying apple would send out its moisture more rapidly when the thermometer near it was seventy than when it was but fifty degrees, but on the tree there would be no perceptible difference. The same evaporation would go on. There is, he says, a vital power in this case which throws off the moisture, and one with which external heat has very little to do.

The great evaporater, he says, in healthy plants is sun light, and it is because of this great evaporating power that plants grow so well in the sun. It makes the moisture leave the plant, and with the new moisture more food enters. We do not know what our practical men will say about this new light, but it is worthy of being noted among the new thoughts of the day.—*Germantown Telegraph.*

Oat Hay.

One of our farming friends, who resides near Philadelphia and has a large milk trade, tells us that for the past four years he has cut oats for hay and has found so much good to result from the practice, that he is thinking of making it a complete substitute for hay for regular cow-feed, as far as other circumstances will allow. He cuts the oats just while the grain is forming and while the whole plant is yet green; and takes rather more pains in the drying, as the oat is rather more likely to mould than the ordinary grass. He claims that he can get a heavier crop of at least as good feed from the same space of ground in a shorter time in this way than he can from any ordinary hay-field.

This may be so, yet there seems to be some objections. In this part of the country at least, if March be wet, or the season late, oats cannot be got in till the middle of April, and it is one of those things which requires to be in very early in order to do certainly well. Again, the oat is more fastidious in regard to soil than grass is. It often happens that land which seems favorable to a good crop of oats so far as the grain is concerned, makes very little straw; and a field of oats not much over a foot high would not be very profitable as a "forage crop." Then again animal labor must be spent on an oat crop, while on a good stand of timothy, the same sowing will do always for two, and sometimes for three years. This saving of labor alone seems to us to be a strong item which ought not to be overlooked.

Yet it seems quite likely that this oat hay idea might very often be taken advantage of to good purpose, and so, as the correspondents often modestly say, we offer it for whatever it is worth.—*Germantown Telegraph.*

RED-TOP.—The *Prairie Farmer* says of this plant:—In most respects it is a most excellent grass. If grown on a proper soil it produces a very large crop, and is well relished by cattle when eaten in the pasture or fed as hay. The foliage is large as compared with the stalks, and, therefore, it is generally eaten quite clean. It forms a firm sod, and is not liable to run out. No grass will bear second cutting or full pasturage better than this. The writer of this has a plot of it on his farm that has been mown consecutively for twenty years, and though the ground has not been manured, it last year yielded over two tons of hay to the acre. It requires a moist, clayey soil, and does not do well on dry, gravelly soil. Springy hill-sides and the land lying below them are the best situations for this grass.

LUCERNE.—We have heard of instances where good success has followed from sowing lucerne in the month of August. It has the advantage of gaining a year, as when it is sown in spring we do not think you can reasonably expect much of a crop that season, but if sown in August on a mellow soil that has been summer fallowed so as to be clean and free from weeds, it has time to get well and strongly rooted before the hard frosts come to cut it off. The liability to be winter-killed will depend very much on the character of the winter. If it were on a soil and in exposure where the surface is very apt to "heave" the risk would be considerable. If the ground was fortunately well covered with snow, and protected, it would go through and be likely to do splendidly the next year. The risks of this crop when it is quite young and tender are very great. When it is once firmly established it is as hardy as any other forage plant. The quantity of seed required is about twenty pounds to the acre. Less would do if we could be sure that it was perfectly good.—*Mass. Ploughman.*

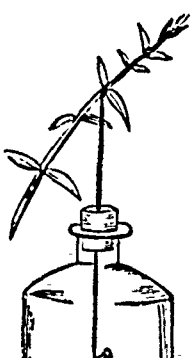
TESTING SEEDS.—Now that spring and the planting season are approaching, it is often important to test the vitality of seeds before sowing them. We have heard the following simple and easy method described: Fill a box, pan or flower pot partly with rich, mellow earth, make the upper surface perfectly smooth, and on this surface draw straight cross lines, and drop a seed at each intersection, so that they may be easily counted. Then take a wide hoop or frame, and make a bottom to it with cloth stretched across, so as to resemble a sieve. Place this upon the seed, and fill it with enough fine mould to form a sufficient covering for the seed, which should generally be four or five times the diameter of the seed for the depth. Keep the soil sufficiently moist and in a warm place. The sieve can be lifted easily and the seeds examined without disturbing them. In this way corn, wheat, clover seed, turnip seed and many other kinds can be easily tested, which may be of considerable importance where the age or freshness of the seed is not certainly known.—*Country Gentleman.*

Horticulture.

EDITOR—D. W. BEADLE, Corresponding Member of the Royal Horticultural Society, England.

THE ORCHARD.

An Indian Bird Scarer.



Bird Scarer.

A poor Koonbee, away off in an Indian jungle, Washington Teasdale says, invented one of the most effective and least objectionable contrivances he ever met with for keeping birds from fruit. The sketch almost explains itself. An empty bottle suspended from a pliant branch or twig, the bottom being cut off by drawing a heated wire round from a file mark; the suspending string passing through the cork terminates in a nail, button, or pebble, which thus becomes the tinkler or clapper of a bell which the slightest breeze sets and keeps in motion. If the suspension of the bottle is effected by means of wire instead of twine, the effect is much better. Twine is too limp; wire or watch springs give a sort of regular electricity.—*Rural New Yorker.*

Orchards in Grass.

Mr. Thomas Meehan, in Forney's *Weekly Press* gives the following clear statement of the plan he recommends in orchard management:

To plant an orchard, we should take an ordinary good piece of ground, that would grow well any of the cereal crops, and after manuring it very well all over the ground, take off a crop of potatoes. After the potatoes are out, put in with either rye or wheat sowing grass seed with the grain. After the grain is cut the following fall, plant the trees at whatever distance may be agreed upon, in the rye stubble. No large holes or deep holes are needed—just large enough to get the roots in without cramping will do. Sow clover in March or April of the following spring, and roll. The whole expense of planting an orchard in this way, need not be more than five dollars per acre. So far there surely has been no great expense. At hay time cut and cure the grass, as we would any other hay field.

Now comes the time to care a little for the trees. After hay harvest, bring anything for a change, in the shape of material to top dress about the trees, *only so far as the roots extend*, not the whole surface of the orchard. This need not be a "rich compost"—ditch scrapings, kitchen waste, ashes—no matter what, and spread for a half inch deep "or so," according to richness under the tree. Mere sand will very much benefit a pear tree, if it be growing on clay soil. Thus do every year, widening the space top dressed as the roots extend with the age of the tree.

If one desires to get a crop of good grass from the ground, for a few years at least, until the trees grow large enough to cover the whole ground, as it may be profitable to do, the grass also must be top dressed. No one under the sun would expect to get a crop of grass year after year from the same piece of ground without manure of some kind. But this need not be put on "two or three inches deep." It is absurd to suppose that any one would recommend such a thing. A very light dressing is sufficient. We should ask no more for the grass than any other grass field without an orchard would require. In the editor's own practice, he puts on every year about six to ten dollars worth of Baugh's superphosphate per acre, and in this way gets from two to three tons of hay to the acre from among his orchard trees.

The man who would see his grass yearly growing less and less, and forget that manure would give him a heavier crop, would as soon "forget" that his cows must be fed in order to give milk. Farming can readily do without such people. We do not write for them. As to the expense, any reader can see for himself that there is less expense in starting and managing an orchard in this way than any other, while there is infinitely more returns for the same expense, than on any other plan ever recommended, except, as we have said, in special cases.

Duchess and Tetofski in Southern Minnesota.—A correspondent of the Rochester, Minn., *Post* says a gentleman of that neighborhood has his orchard on a southern slope and has lost his trees of nearly every variety except the Duchess of Oldenburg, of which he has 400 in fine condition. The correspondent has found but two varieties that are perfectly hardy—the Duchess and Tetofski. The Haas and Red Astrachan bark crack with him.

A Favorite Apple.—A writer in *N. Y. Tribune* says: "In making out your list of apples for spring planting, don't forget to insert one Early Joe. It will not pay for market, but for the private table I am especially partial to its delicious flavor, crisp juicy flesh, and very handsome appearance. The tree, I presume, will never grow to a very large size, consequently there is many an odd corner about the garden or orchard where a specimen would just fit in, and my word for it when the fruit is ripe, it will be better patronized than any other on the premises."

Northern Spy Apple.—In our notice last summer of Joseph Harris' fine orchard of Northern Spy apple trees (which was kept well cleared of the codling moth by the range of a flock of sheep), we mentioned the good promise which it gave of profit to the owner. Mr. Harris has since given in the *American Agriculturist* a statement of its actual products and sales. With the average size, 220 apples filled a barrel, with selected ones 186 to 190. He sold the crop of the four acres to one man, and drew them directly from the orchard to the railroad station. They brought him $1256. He has been repeatedly urged in past years to regraft that orchard to Baldwins and Greenings. But quoting the remark we made him, that the Spy though a tardy bearer, "was worth waiting for," he has kept them, and this is the result.—*Country Gentleman.*

About Grafting.—There are many curious facts about vegetable life. We can, for example graft the apricot on the plum, and the peach on the apricot, and the almond on the peach, and thus we may produce a tree with plum roots and almond leaves. The wood however, of the stem will consist of four distinct varieties, though formed from one continuous layer. Below the almond wood and bark we shall have perfect peach wood and bark then perfect apricot wood and bark and at the bottom perfect plum wood and bark. In this curious instance we see the intimate correspondence between the bark and the leaf, for if we should remove the almond branches we might cause the several sorts of wood to develop buds and leafy twigs each of its own kind. Each section of the compound stem has its seat of life in the cambium layer and the cambium of each reproduces cells of its own species out of a common nutrient fluid.—*Mass. Plough man.*

THE FRUIT GARDEN.

Red Spider.

If the size of this insect was proportionate to the damage it does to plant-life, it would be much more formidable in appearance than it is, but, being exceedingly small, it frequently escapes detection, until the plants upon which it makes its appearance have sustained serious injury. Great numbers of cultivated plants, especially such as are grown under glass, suffer from its ravages, but such as have thin soft leaves, like Vines, Cucumbers, and Melons, are more subject to it than others. The living insects cannot exist in a low temperature but their eggs are proof against the lowest temperature of our severest winters. The red spider has a great aversion to moisture in the atmosphere, and still more to its application directly overhead by the use of the syringe or garden engine, a fact which at once indicates the means most likely to prevent its appearance where water can be used plentifully without injury, in other respects, to the general health of the plants. In the stove, the fruit-bearing Banana, and the acrid juiced Croton, or Euphorbia, alike furnished food for it. Dipladenias, Hibiscus, Ixoras, Franciscea, Amaranthus, Palms, Ferns, Dracænas, together with quantities of other plants, are affected by it. Through the growing season, a plentiful and continuous application of water overhead with the syringe is necessary, and it frequently happens that this is insufficient to keep it down, unless used in quantities that will make the soil too wet, and, consequently, injurious to the roots of the plants. Where such is the case, for hard-wooded plants, a weak solution of "Fowler's Insecticide," 2 oz. to the gallon, will be found a very effectual remedy. In the autumn and winter seasons, when the usual afternoon syringing is discontinued, Red spider is frequently very troublesome, and any plant affected by it should receive a washing with the insecticide as often as it makes its appearance. In the stove, I do not advocate sulphuring the pipes, as there generally are numbers of plants that suffer from that practice; neither is the application of sulphur dusted over the plants safe in all cases, as it frequently causes quantities of the leaves to fall off. Orchids are not so often attacked by this insect as other plants. The humid atmosphere kept up in the houses devoted to them, keeping it in check, yet the introduction of an infected plant will sometimes cause a good deal of trouble amongst the thin-leaved species, such as Dendrobiums, Lycastes, Sobralias, Odontoglossums, and some Orchids; and, if a considerable number of plants are affected before it is discovered, it takes a serious amount of labor to eradicate it completely, as there is no method that can safely be employed, except sponging every leaf with clean water; this requires to be thoroughly done, going regularly over all affected plants without omitting a single leaf, and repeating the application until no trace of the insect can be found. Ferns are not often attacked by this insect, yet sometimes it appears on the fronds of tall tree varieties, that happen to be near the roof glass, and in that case copious washings with the syringe are the best means to employ for eradicating it. Conservatory climbers, particularly such things as Mandevilla Suaveolens, Kennedyas, &c., are very subject to spider, and it spreads from such plants apace over everything under them on which it can live. Persistent use of the syringe or garden engine, is all that can be done in such a case, except the application of sulphur to the pipes, in a way hereafter to be recommended for Vines. Some greenhouse plants are very subject to red spider, as, for instance, Fuschsias, Statices, Pleromas, Pimeleas, Boroneas, as well as numerous soft-wooded plants; but a liberal use of the syringe, and, *if this is found* insufficient, "Fowler's Insecticide," 2 oz., to the gallon, will destroy it. There is one greenhouse plant which red spider seems to like better than almost all others, viz, the Glory Pea (Chianthus puniceus). Wherever this, or anything that is similarly subject to this insect, is grown, they should be examined, during the growing season, every few weeks, for, if they are neglected, and the insect is permitted to thoroughly establish itself, it not only completely spoils the plants upon which it first makes its appearance, but spreads to any others standing near them. Pimeleas should be regularly syringed during the growing season every evening, getting well to the undersides of the leaves, for, if these plants ever get thoroughly infested with this insect, they never afterwards get into a free habit of growth. Even Heaths, if placed in contact with plants suffering from this pest, will be seriously damaged by it, if not discovered before it has got much hold of them. For any plant of slow growth, which retains its leaves naturally for years, it will at once be obvious that the destruction of its foliage is far more serious than in the case of deciduous plants, or such as are of quick growth, and consequently are enabled to recover from any injury of the kind. Plants grown for the beauty of their foliage, such, for instance, as Cordylines and Dracænas, if the leaves of these are injured by the ravages of insects, they can never be replaced, as, when once they get yellow, which they quickly do through the effects of this insect, they fall off prematurely.

On Vines.

To Vines red spider is extremely partial, and it does more harm to them than all other insects put together. Where it has established itself, during the season, as soon as the leaves are off, the Vines should be pruned, taken down, and the oldest outside bark removed (without stripping it too closely as is often done, and which does serious injury), getting well into any hiding places where the eggs are deposited, then paint the whole of the canes thoroughly, from the collar to the extreme point, with the usual dressing of water, clay, and a little soot, mixed to the consistency of thick paint, to which add 1 lb. of flowers of sulphur to each gallon. Scrub all the wood and ironwork thoroughly with soap and water, limewash all the brickwork. If there is an inside border, remove 2 inches of the surface soil, and add an equal amount of new material. When the house is again started, and until the Vines come into bloom, use plenty of moisture in the atmosphere, and syringe regularly overhead. Those who aim at high-class Grape-growing, *with the berries as heavily covered with bloom as* possible, generally cease syringing after the opening of the first bloom, but to the amateur, or those who have not had much experience, I would say, begin syringing again as soon as the berries are set, and continue to do so daily, until the fruit begins to color; it will make the bloom thinner, and so far will injure the appearance of the fruit, but the chances are that the Vines will finish the crop better, without distressing them half so much as if the syringe had not been used after the flowering stage, for the spider is almost certain to make its appearance before the fruit is near ripe, if the syringe is not used. Hundreds of

Vines that get into a bad condition have the evil laid to the charge of over-cropping, when the cause is due quite as much, or more, to the ravages of this insect. The most effectual means for its destruction is the application of sulphur to the pipes or flues, but if the house is flued, care must be taken that the sulphur is not laid on the flue too near the furnace, or the consequences may be most disastrous on account of the ignition of the sulphur. With hot-water pipes, this cannot occur. To one part fresh lime add two parts flowers of sulphur, and mix with as much water as will bring it to the consistency of thick paint. On a mild dull evening, if possible, get the water in the pipes as near boiling as can be, close the house and saturate the atmosphere with water, then regularly paint the pipes over with the mixture. If the weather is dull, so as to require little or no air during the following day, so much the better. An almost general impression prevails that if sulphur is applied to the pipes before the berries are stoned, the skin will be injured. In the case of tender-skinned sorts, like Buckland Sweetwater or Foster's Seedling, if the bunches are near the pipes, such will be the case, but Hamburghs, Muscats, Alicante, or Lady Downes, will not suffer. If the atmosphere is thoroughly saturated, the skin of the berries becomes coated over with the moisture, which appears to shield them from injury; but for the thorough destruction of the insect, and freedom from injury to the fruit, the above directions as to thorough saturation of the atmosphere must be carried out in their entirety, and the operation must be repeated in the course of ten days, by which time any eggs that have been deposited will have come to life. I may here state that no insecticide can with safety be applied to Vines, except to the bare wood when at rest; any dressing after the berries are formed will disfigure them, and if applied in the late stages of growth, will leave unmistakeable evidence of its presence by tasting the fruit.

On Cucumbers and Melons.

Cucumbers are subject to red spider, but on them it can be kept under by the use of the syringe. Melons are especially subject to spider in the early stages of their growth, and whilst the fruit is swelling the syringe will keep it under; but when the fruit begins to ripen, necessitating a drier atmosphere, it is more difficult to manage. In houses or pits heated with flues or hot water, it can be treated as in the case of Vines, but in dung-pits or frames it is difficult to manage. During the ripening season, a close watch should be kept, so as to detect the insect as soon as it makes its appearance, carefully sponging the leaves thoroughly both on their upper and under surfaces.

On Peaches and Nectarines.

The Peach-house is one of its favorite haunts, if there is an insufficiency of water applied to the trees overhead; but where the syringe is used freely in the early stages of the growth of the fruit, it has not much chance of getting established. Neither should it be allowed to run riot over the trees after the fruit is gathered, as such has a most baneful influence upon their strength, causing the leaves to fall prematurely, and thereby destroying the vital power of the trees. Peaches and Nectarines on open walls are alike subject to this insect; but, here again, it is attributable to an insufficient use of the garden engine. The Peach, in its native habitat, is subject to a great amount of moisture, and an insufficiency of this at once renders it a prey to every insect that revels in a dry atmosphere. To keep red spider down, the Peach wall should have a good washing with the garden engine twice a week, from the time the trees go out of bloom to their commencing to ripen.—*T. Baines, in the Garden.*

A Remedy for the Currant Worm and the Hop Louse.

Noticing a request in one of your contemporaries for a "Remedy for the Currant Worm and the Hop Louse," the furnishing of advice to farmers and others upon similar subjects being my profession, I communicate to you the following:

The Currant Worms at present known to me may be divided into three classes—

1st. Those which make burrows in the stems and twigs, of which I know two kinds infesting the cultivated red currants.

2d. Those which eat off the tips of the twigs, of which I know one kind.

3d. Those which eat the leaves, of which I know seven kinds.

You will therefore perceive the impropriety of speaking of *the* Currant Worm. Of the latter seven, however, only three do important injury in this State. Of these three the one which I have most frequently met on the currant bushes in my garden within the last two years is the Imported Gooseberry Saw-fly (*Nematus Ventricosus*). The larva (false caterpillar) of this is green with black spots, except sometimes toward the end of its life when the black spots are lost. It has fourteen belly legs in addition to the usual six jointed legs.

The one which I consider next in importance is the American Currant Moth (*Ellopia ribearia*), the larva (caterpillar) of which is yellow with white and black spots, and has only four belly legs in addition to the six jointed legs.

The Imported Gooseberry Saw-fly may be attacked in the egg or in the larva. From about the middle to the latter part of May, or soon after the leaves of the currant bushes are put forth, the eggs can be found attached to the under side of the ribs of the leaves. The leaves should be examined every day at this season, and those which have eggs on them should be picked off and burned. Soon after, if the eggs have not been destroyed, little holes will be made in the blade of the leaf by the young larvæ, which can thus be discovered more easily, and should be killed. If this is neglected the leaves will be more and more devoured, the larvæ remaining beneath them most of the time in easy reach. If the bushes are not considered worth their care, they should be cut down, so as not to serve as nurseries for the propagation of these and other pests. The farmer who neglects them should feel ashamed. Some of the larvæ should be enclosed in a box, and bred to the winged state, that the farmer may learn to recognize the parents, the males and females looking much unlike. The winged insects are very sluggish, and can be captured without difficulty when they are seen. A second brood begins to appear by the latter part of June and through July, if the former brood has not been destroyed, and must be attacked in a similar way.

I know very little of the Hop-plant Louse (*Aphis humuli*) which is a recently imported European insect, if I am not misinformed. It is stated that an efficacious remedy is to char the hop poles every year before using them. Boiling the hop poles in water or soaking them in oil or corrosive sublimate would be as good as charring them.—*Cor. Mass. Ploughman.*

Killing the Borer.—Mr. Gordon D. Brock, of Lindsay, writes: "I have discovered a cheap and sure way of killing the Borer without the knife, by applying soft soap suds with a syringe. The worms have been as bad in my plums as in the apple-trees the past season."

Long Vitality of Seeds.—An instance is mentioned in the *Prairie Farmer* by Dr. Hubbard, where seeds of the burr oak, buried beneath the surface of a well drained piece of land, remained 30 years in a dormant state, till thrown up nearer the surface, which caused them to germinate. It is familiar to nurserymen that peach stones buried compactly a foot or two below the surface will remain dormant for a time, and it would be an interesting subject of inquiry to ascertain to what length the period might be extended by deep and compact burying, for different kinds of tree and other seeds.

Profits of Cranberries.—Cranberry vines do not, as may be commonly supposed, root into the soil. They appear to twine their roots around grasses and moss, propagating from their joints and obtaining their nourishment apparently from the water around their roots. They are strong and hardy, and, if the water is regulated properly, will multiply with astonishing rapidity. Respecting their value as a product, we have some Munchausen reports for the year 1873. One gentleman picked from his "best acre" 1,373 bushels. He received $2,80 per bushel, and as the picking cost him one dollar per bushel, his income from that one acre was $2,461,40. Others had a yield of from seven hundred to one thousand bushels per acre. But these are examples of the greatest yields. Some parties average one hundred and thirteen bushels to the acre others as low as twenty bushels, the latter being marsh just commencing to bear. By the sudden appreciation of the marsh lands producing this article of consumption, many have almost instantly found themselves wealthy. Men who, a year or two since, would have taken a thousand or two for all they possessed, are now the "heaviest" men known to the bankers of their towns.—*Milwaukee Journal of Commerce.*

Forcing Barren Trees to Bear.—This can be done by pruning, from the 25th of August to the 15th or 20th of September. While I don't know as I can give a scientific reason for it, yet I know, by actual experience, that it will have its desired effect if properly done. If the tree is very vigorous, root pruning may be necessary. The reason I assign for pruning at that time is that the fruit buds are formed at that season, and if the flow of sap be turned from the wood it will go to mature the fruit-bud.—*Prairie Farmer.*

THE VEGETABLE GARDEN.

Old Gardens, and means for their Renovation.

Land under cultivation for the production of kitchen garden crops forms no exception to the general rule of the soil being unable to bear, for an indefinite period, a repetition of the same or a limited succession of crops. Such is the state of very great numbers of old private gardens, where too often every load of manure required by the gardener is meted out with a grudging hand, alike unmindful and indifferent as to the absolute requirements of the vegetable and fruit departments. The expedient, not unfrequently restored to, is the making of a new garden altogether. When the area required is large, say from ten to twenty acres, this is in all probability the best course when a suitable site can be got, but even where such is the case the making of and inclosing a kitchen garden is a costly job. But it often happens that the existing garden is placed in the only situation possible; where such is the case, and more especially if the area is not too large, and the material in the shape of new soil is obtainable, renovation is the only course to follow. The way to proceed is to introduce from eight to twelve inches of new soil. Within an easy distance from large towns, where building operations are in progress, the top spit from grass land can frequently be got for little more than the cost of carriage; but in country districts it is not so easily obtainable. No one is fond of breaking into grass land and removing the best of the soil in such quantity as the extent this operation will require. I must confess that I never yet removed from a pasture, or meadow, the comparatively small quantity of turf required for making or renovating a vine border without feeling that it was making a sacrifice, even if an unavoidable one; and, before commencing, it is as well to see if the material can be got from any other source. Where there is common land that can be got at within a reasonable distance the thing is simple enough; such failing, there is yet another source. In many country districts, on the sides of the roads, there are continuous banks of earth, the accumulation of years of road scrapings and ditch courings, still increasing, and grown over with a luxuriant sward of grass. These said accumulations do very great injury to the roads, above which they are in many places from a foot to 15 in. higher, preventing most effectually the water from getting away. The gritty character of these road-side accumulations renders them for some soils even superior to the surface soil from cultivated land. Old gardens—the soil of which has become nothing more than a mass of humus—are greatly benefited by a good dressing, say 6in. of good sound clay, or, still better marl where it can be had, laid roughly on the surface in the autumn or winter, so as to allow it to become mellowed by the action of frost.

When the question of material for the renovation has been settled the first essential is to ascertain that the drainage is efficient. Even where there is little apparent stagnant water in the soil it frequently happens that a more complete system of drainage would greatly improve the land in several ways, by rendering it much more workable at all times, as well as allowing the production of spring crops much earlier. Wherever there is any undue retention of water, even in the subsoil, the heat accumulated in the earth during the summer is much sooner lost in the autumn months, and it requires a longer time in the spring for the sun's rays to warm the soil sufficiently for the development of vegetable life. Then as to the depth of the drainage. This is a subject that for the last thirty years has received the attention of those connected with land cultivation on both farm and garden. Various depths have found advocates, from 2ft 6in. up to 6ft. For most soils a medium depth, betwixt the two extremes, will be found nearest the mark. But any uniform depth of drainage for soils of the different descriptions, such as are found in almost every parish in the kingdom, is about as inconsistent with common sense as it well can be. For all practical purposes, it will be sufficient to say that the bottom of any drain should be something like nine inches below the pan, or stratum, that holds water; and for a garden something more is required than the simple pipe-drain alone, inasmuch as roots of the fruit trees, and some culinary vegetable crops, such as beet, are subject to get down into the pipes and choke them. This is a matter that should be guarded against. After the pipes are laid, six inches of scoria, brick rubbish, broken stones, or flints, should be laid on the top, such not being available, faggots to the same depth should be used. This, in a great

measure, prevents the danger of root-chocking, for, even if the pipes were grown up with roots, the material above would act as a drain. To render the drains more perfect before the earth is filled in, there should be two inches of straw placed over the drainage material already in, and then fill up.

If the new soil used is of such description as to admit of its being incorporated at once with the soil already existing, this should be done by commencing at one side, and regularly trenching the whole garden right through, mixing the new soil well with the old to the entire depth the ground is stirred, adding at the same time a liberal dressing of manure. The question of depth in this operation of trenching will altogether depend upon the natural depth and character of the soil, and also the depth that has been gone to in previous trenchings. If the subsoil is bad or inferior, no portion of it should be brought to the surface; but a few inches of it may with advantage be stirred and left where it is for the present, the soil above it, and the essence of the manure washed down by rains becomes mixed with and gradually improves it by the time the land again requires trenching. In, say, three years, those few inches of bottom soil can be brought to the top, and a little more of the bottom loosened up and left as before. Where the subsoil is ordinary clay a couple of inches at this and every subsequent time the land is trenched may with advantage be brought to the top; but, where this is done, the work should be carried out in the autumn, or early winter, so as to allow of the clay getting mellow, and in a fit state to be forked in previous to the time of cropping. As the work proceeds, any old useless bush fruits, such as gooseberries and currants, that are too far gone to be of any further service, should be destroyed, as also worn-out unfruitful apples, pears, plums, &c.; but in this removal of fruit trees let there be due consideration as to the requirements of the spot, and what there exists to supply their place, remembering that however unsightly a tree may be, if it be fruitful it is of more use than the beautifully symmetrical tree, that is not in bearing condition. Many a gardener has found when too late his mistake when removing unsightly trees before he has got others in bearing condition to supply their places. This is also an excellent opportunity for root pruning any trees that are too vigorous; but in the case of such the operation should be completed not later than the end of January, or earlier if possible. I never yet saw root pruning done late in the season without serious injury being the result.

This renovating process will naturally cause an upset of many crops that cannot well be spared—things of a permanent character, such for instance as asparagus. The ground occupied by this vegetable should not be disturbed until fresh beds have been made, and got into bearing condition; this will take two or three years. The ground selected should be such as has been cropped with something as different as possible; say where gooseberries or currants have been growing for a considerable time. If the soil is of a fair description, it need not all be removed to the full depth of the beds, as it is sometimes done; if 18in. be taken from the surface, and 2ft. of new soil and manure be brought in its place, and well incorporated with 18in. of the under soil, it will make ample preparation for growing this vegetable well. In the working of old gardens a great deal may be done to prevent their becoming exhausted by continually, as opportunity occurs, adding something to make up for the continuous drain on the fertile constituents of the soil by the different crops that are taken from it yearly. Soils of a naturally light description have a tendency to much sooner become sterile than those of a heavier, more retentive character; and without the continual addition of the necessary, but not over-plentiful manure to eke out which large quantities of leaves are generally used, in the course of time soil of this character gets exhausted. If, instead of year after year working on this exhaustive system, no opportunity be lost of adding even in small quantities new soil whenever obtainable, a garden may be kept for almost an indefinite time, without getting into such condition as to require an operation of such magnitude as the addition of new soil in the quantities necessary, where complete exhaustion has taken place. It frequently happens that stable manure is used, to the exclusion of every other kind; for light, dry, sandy soils, cow or pig manure used alternately is preferable, and with such the soil will not so soon become exhausted. The high temperature which stable manure is often allowed to get to before use renders it little better than so much decayed vegetable matter. If the manure, of whatever description is used, could be taken fresh, and mixed with an equal proportion of loam or dry road scrapings, it would be much better used in such a way, and the evil under consideration would not occur.—T. B. *in Field.*

Growing Potatoes.

Hoary winter will soon shrink from the approach of mild spring, and it becomes us to send our thoughts forward to anticipate its coming. I want to tell my practical friends how I grow some things, and wish they may try my plans and report accordingly.

I will speak first of potatoes. This crop, being the heaviest grown on farm or garden, should be well grown or not at all. I will take for granted, then, that every farmer has prepared a piece of land for this crop; and as no one would be so silly as to plant potatoes in the same ground twice, if he could avoid it, I presume that there is a little corner somewhere of nicely turned old sod—better if clover, or a good stubble—on every farm. It has been no doubt nicely (and by that I mean heavily) manured, and well ploughed under, or better, if he has saved the manure, and often added litter, earth scrapings, &c., to it, and turned it several times, to be ready to apply in early spring after a good harrowing. If the latter, then put on the manure and plough in deeply as possible; harrow and mark out as usual, by running your furrows straight as a line, three feet apart; or if for hills, thirty by thirty inches; plant shallow, say two inches, never deeply; turn ridges, so that immediately, on the first appearance of a shoot, they may be scraped down with horse scraper or rake. Keep clean from this time on, always forcing a little earth to the vines as they grow up, and then—but before I proceed to finish up, I want to say a few words, by way of parenthesis, about plowing in manure. I have always taken the greatest pleasure and pride in ploughing; my furrows in ploughing up must be as straight as the furrows above for planting. My old "boss" when he gave me the first lesson in ploughing (and may I brag a little, being incognito) and say it was the first and last lesson in ploughing that any man could give me), said, "G, plough straight—you will do one third more work by it." Now in my experience I have learned that I cannot plough manure so deep even with a three-horse plough, but a good harrowing will bring up at least one-third of it to the surface. If then this is so, and you plant two to three inches deep, and you have ploughed eight inches—far deeper than the average—your plants will be within the reach of the manure and the roots within ten days growth of any portion of it. Therefore, plough deep, if you can, "while sluggards sleep"—but plough deep, any way, whether turning in manure or not, always hitting a little of the subsoil. I can hardly resist the temptation to go into this subject a little farther but have not room now, and will return, to it at some future time. So far I have said nothing but what every good farmer would naturally follow, but this is what I want done in finishing up the crop. Just as the vines are beginning to lop over, go in with a good two-horse plough and run two furrows in a row; running your plough down close to the row of potatoes, throw the furrow over the other row—returning do the same with the row you have just left—this will bury your vines within two inches of their tops, and then—well, I will wait to hear from you what happens afterwards.—*Cor. Country Gentleman.*

Onion Raising.

Does it pay to raise onions? I have heard a great deal about the profits of the business, and have been told that on suitable land they could be grown for seventy-five cents a bushel, while they were almost sure to sell for a dollar, and sometimes bring twice that sum—these and similar things I have heard in favor of growing this particular crop. The past season I have been giving it a practical test. Owing to the drought I did not get more than two-thirds as many onions as I should if the season had been favorable. The best spots on my piece yielded at the rate of about two hundred and forty bushels per acre. Allowing this to be two-thirds of a crop it would give three hundred and sixty bushels. Some claim to obtain a great many more, even as high as nine hundred bushels an acre, but many good growers admit that an average yield, on good land, with good cultivation, will not exceed four hundred bushels. Of this, if a man does not own land, one-half is to be given for its use. The one who hires the ground furnishes the seed and does all the work even to preparing for the market the half which pays for the use of the land. In the four hundred bushels which he obtains he will probably find from twenty-five to thirty bushels of small ones, which are worth not more than seventy-five cents per bushel. But suppose we allow full price for all, place the crop at four hundred bushels, and call them worth a dollar a bushel when ready for market, and sold at the barn without expense for moving. This is allowing more than the average grower, in an average season, will be likely to obtain, and makes no estimate for losses in any way. At the price which the best seed commanded last spring it would cost him sixteen dollars for seed. To take good care of an acre of onions would require the work of one man for five months, and he would need a sower and a wheel hoe. A man who would take good care of an acre of onions would be worth for common farm work, twenty-six dollars per month, or forty dollars per month if he boarded himself. At the close of the season he would find himself with two hundred dollars worth of onions on which he had done two hundred dollars' worth of work, and paid sixteen dollars for seed, besides furnishing tools with which to work. For the last two months of the fall he would be out of work and that at a time when labor does not command a high price.

Now allowing nothing for the risk, which is very great, and taking it for granted that he obtains a good crop and a fair price, we see that a man will not be likely to hire land and make onion raising pay. If he cannot, can the owner of the land profitably engage in the business? My own experience with this crop has been a great deal of work for little money. —*Practical Farmer.*

Compton's Surprise Potato.

Compton's Surprise has received the unanimous verdict for the most prolific potato cultivated at present. Yields of from 12 to 20 lbs. per hill are reported by the hundreds, and in one instance 28½ lbs. were dug from one hill. As a rule, the most prolific varieties are not of the best eating quality, but to this Compton's surprise is an exception. Thousands have testified that they never ate a better Potato. Its uniform mealiness of grain, combined with the purest flavor, and its snowy whiteness of flesh, which is not in the least affected by its blue skin, cannot fail to make it highly valued as a family Potato. This variety shows a peculiar tendency to produce a "surface crop" not found in other kinds. Its rampant growing vines lying on the ground will frequently take root, and establish a new centre of production. Subterranean branches will also likewise grow above the surface, and form self-supporting plants which produce an additional crop of tubers.

BEETS.—A western correspondent of the *Fruit Recorder* raises largely of the beet crop, as it does not seem to exhaust the soil, and if kept clean, leaves it in excellent condition for the next crop. He sells them in market, the first thinnings when an inch in diameter as greens, in bunches of six for five cents; next, as roots, when three inches in diameter, three to five in a bunch, at the same price, while the late crop, 200 to 500 bushels per acre, brings 60 cents to one dollar per bushel. The Bassano, he finds the best early beet; the Early Blood turnip, the best general or intermediate crop; and the Long Blood, an excellent late variety.

MICE IN HOTBEDS.—When mice get into frames, as they often do, they produce a fearful amount of mischief in a few days, if not destroyed. This may easily be done by mixing sugar and butter or lard smoothly together, in which a little strychnine is incorporated; spread this on thin slices of bread, and cut into small cubes and distribute them among the plants, and at the same time, place vessels of water in some convenient place, where they may drink. Or if preferred the phosphorous compound sold by druggists for this purpose may be used, but we have always had the best success with the first named mixture. In either case care must be taken that the children do not have access to the prepared bits of bread.

A SELF-SUPPORTING KITCHEN GARDEN.—The finest kitchen garden in France is that of Versailles, which belongs to the State, and brings in a yearly revenue, taking good and bad years together, of about 20,000f., the produce of the sale of the fruit and vegetables raised in this useful work of La Quintée, gardener to Louis XIV. The Assembly has determined to apply this valuable property to the formation of a model market garden and school of horticulture. The details of the institution are not yet arranged, but it is presumed that it will be self-supporting, and that it will render valuable assistance in the development of horticultural science in France. The industry to the growth of which this school will, doubtless, largely contribute, is greatly on the increase in France. Fifteen or twenty years ago the exports of French fruit and vegetables, represented a money value of from eight to ten millions. That figure has now increased to thirty-five or forty millions, a progression which would become even more rapid if market gardening in France were uniformally conducted on sound principles of horticulture, such as it will be the business of the proposed institution to exemplify and popularize.—*Echo.*

THE FLOWER GARDEN.

New Plants.

Croton Majesticum.

This new Croton has been introduced from the South Sea Islands, and will be a most welcome addition to our collections of variegated-leaved stove plants. In coloring it is truly gorgeous; its narrow leaves are of a deep olive green, edged with scarlet and having a deep scarlet midrib; and are dotted with numerous spots, some of which are yellow and others scarlet. As the leaves acquire age the olive green portion becomes yellow, thus presenting a great variety of coloring.

It thrives best in a strong heat, accompanied with abundant moisture and exposed to a strong light. It should be grown in rich loam mixed with a little peat and sand, thoroughly drained, so that the abundance of water in which it delights shall never become stagnant.

Crotons will bear the atmosphere of a dwelling-house remarkably well, and can be used for decoration in the sitting room, or on the dinner table, where their showy foliage is a constant source of gratification.

The Hanging-Gardens of Babylon.

Our pretty hanging baskets, with their suspension wires completely draped in delicate climbing vines and standing mosses, and their masses of beautiful trailing plants, their drooping grasses, vines, mimosas, musk-scented and covered with brilliant golden flowers, though lilliputians are literally hanging-gardens but even should they be made a million times larger, their plan is so utterly different, that they could never suggest the faintest notion of the hanging gardens of Babylon, about the very name of which there is a ring of poetic grandeur and a flavor of Oriental magnificence. They were literally Paradise; for, though our word is directly from the Greek, the Greeks borrowed it from Persia, where to this day the rich satraps rejoice in their paradises, or pleasure gardens. Xenophon mentions those of Belesis, governor of Syria; and such as he beheld them, apparently, we find them described by Chardin and other modern travellers. The hanging-gardens of Babylon were simply a very costly variety of the paradise, such as only princely wealth could afford. The origin is attributed to Semiramis by some; others say they were invented by a king of Syria to charm the melancholy of one of his wives, of Persian origin, who sighed to behold again the verdant mountains of her native land. Strabo and Diodorus Seculus have written about these famous hanging-gardens, Philo of Byzantium—if, indeed, he is the author of the treatise on the seven wonders of the world by some attributed to him, and many others.

They were called hanging-gardens, doubtless, because of the huge branching palms and other trees, overhanging the balustrade on the summit of the high walls that inclosed the paradise. These walls were about one hundred and thirty yards long on each of the four sides, twenty-two feet thick, and fifty cubits high, or over ninety-one feet according to the Hebrew cubit; by the Roman or by the English cubit, a little less. Around the interior on all sides, rose terrace above terrace to the number of twenty, the top one resting on the outer walls, and even with the balustrade. The terraces were upheld by immensely strong galleries, whose ceilings were formed of hewn stones sixteen feet long and four wide. Resting on these stones was a layer of reeds, mixed with a great quantity of asphalt, and on this was a double floor of fire-dried bricks laid in mortar; finally, a floor of lead plates to prevent any moisture from penetrating the foundations of the terraces, the soil of which rested directly on the leaden floor, and was of sufficient depth to hold and nourish trees fifty feet high, and thousands of rare plants culled from all parts of the known world. All these were kept in a perennially flourishing condition, we are informed, by water raised from the Euphrates through the aid of machinery; concealed from view in certain rooms made in the galleries. The galleries also contained many royal apartments, variously decorated and furnished. Decently lighted they could not have been; but one can easily imagine that a walk around those upper terraces on a fine moonlight night, the scenes charmed by soft music and by waves of perfume rising from the wilderness of flowers and shrubs below, must have been enchanting to the last degree.—*Marie Howland.*

Plants Growing in Windows.

Thousands who try to grow plants in pots, tubs or boxes, fail, mostly because they let the pots be exposed to the hot sun. Now we never see the roots—that is, the part which draws nutriment from the soil—fully exposed to the sun in a state of nature, and this should teach window gardeners to shade the pots and boxes in which their plants grow. Another cause of failure is allowing the leaves to fill in reality the lungs of the plant) to get dirty; it is important that they should be kept clean. I have often been asked why plants did not do well in windows, and it is often difficult to answer without seeing the plants, but the general failure occur from the causes above named, for it stands to reason that if half the roots of the plant are burned off repeatedly and the leaves are killed with dust, sickness will be the result. It is easy to clean off the dust by taking a little brush or broom and dipping it in water and flirting over the leaves of the plant two or three times a week. Try it, ladies.—*Prairie Farmer.*

Supports for Flowers.

A correspondent of the *Journal of Horticulture* advised the culture of the *Halesia*, or snow-drop tree as a means of supplying suitable sticks as a support for pet plants. He says:

Procure plants or suckers, select a piece of ground; they are not particular as to soil, any out of the way place will do, but a moist one will suit them best; plant them one foot apart and cut them down to within two inches of the ground every autumn. If a few stronger sticks are wanted, leave the plants a winter without cutting, tie the shoots in bundles and keep them in a dry place until wanted for use. If used green, as they emit roots so freely, they should be placed in a hot flue oven, or some such place, for a few hours.

The quantity a few plants will grow is astonishing and the sticks will last two years, and I am sure they are unequaled for tying such plants as Achimenes, Mignonette, etc. If allowed to grow in the shrubberies, the plants are very ornamental; but when permitted to flower and make large bushes, the quantity of shoots obtained is diminished considerably. Bees, too, are very fond of this plant, the flowers being numerous; and from them, the bees gather a great quantity of honey.

There are other plants, from which useful flower sticks may be taken; many varieties of hardy, deciduous Spiræas; varieties of *Hypericum* or St. John Wort, *Ligustrum* or Privet, and Lilacs.

The Value of Sunflowers.

We would call the attention of farmers at this time to the value of sunflowers as a crop, and enumerate some of their values and uses.

In the first place, the flowers abound in honey and furnish food for bees. The seeds contain oleaginous matter, and will yield oil at the rate of one gallon to the bushel, which is but little inferior to olive oil. One acre will produce fifty bushels of seed. It is also valuable for feed for horses and poultry. The leaves are excellent fodder for cattle.

The stalks while growing may be utilized as bean poles, where they are scarce and difficult to be obtained, and when dry may be used as roofing, or set up against a fence to form a wind-break. They contain a large amount of potash and are excellent for fire kindling. The seed has also been recommended for fuel.

The reputation of the growing sunflower to absorb miasmatic vapors, and preventing fever and ague, is well known.

Flowers Among the Ancients.

The custom of using flowers on occasions of mourning and festival is of high antiquity. Roses were especial favorites of the Romans; their floors and couches were strewn with them at feasts; sometimes the ceiling was arranged to shower roses on those below, occasionally almost to suffocation. Among the Greeks

> It was the custom then to bring away
> The blushing bride from home at close of day,
> Borne in a chariot, heralded along
> With strewn flowers, torches, and a marriage song.

The classic fables concerning them are innumerable. Daphne transformed to the Laurel; Syrinx to the Reed; Narcissus, emblem of self-love; Hyacinth, sprung from the blood of Apollo's murdered favorite, and Anemone from the earth where lay dead Adonis—are but few of those that might be mentioned.

Coleus Verschaffelti Splendens.—This is a fine high-colored sport from the good old C. Verschaffelti. It is several shades paler, and consequently produces a brighter effect than that kind. When this becomes generally known, it will be grown in quantity for bedding purposes in place of Verschaffelti.

Tobacco Leaves.—The State Chemist of Connecticut, in his report, presents some interesting information in reference to the tobacco crop, with the result of tests upon the tobacco leaves. The general summary of the reports is as follows: The most highly valued tobacco in New England is the thin, tough, elastic leaf, which burns readily to ashes. Those leaves containing the most carbonate of potash in their ashes, burn the most freely and suitably. In some combinations potash does not favor the burning, and some tobacco manufacturers improve the flavor and burning quality by artificially impregnating the leaf with acetate, citrate, or tartrate of potash, applying the latter in solution and then drying. Chlorine injures the tobacco, as also does nitric acid. Sulphuric acid, united with potash, soda, or lime, favors the burning of tobacco. The best tobacco is produced on well-drained, warm, sandy lands. It is believed heavy manuring increases the quantity of the crop generally at the expense of quality as regards texture.

The selection of plants for winter window vases depends essentially upon which side is to be the point of view. If chiefly from the *outside*, large leaves and large colors show best, such as bulbs, or well grown foliage plants, as begonias, &c., kept under glass shades to preserve the necessary air moisture, with the warmth which they require. But if the vase is seen chiefly from the *inside*, the case is very different. Colors will not show well against the light, but neatness of outline and graceful wantonness of spray will show with great elegance, especially if seen against the sky with only the panes of glass intervening. The pretty curls of the coliseum ivy *(linari cymbalaria,)* or the ringlety smilax *(myrsiphyllum,)* or the fine tufts of gypsophilla and of some saxifrages, sedums, galiums, and other Alpine plants and grasses are graceful in every turn, like the unstudied movements of a joyous child, and color will not be wanting. Leaves thin enough to show their tints transparently, show them against the sky to great advantage. Most of these plants endure dry air very well.—*Country Gentleman.*

The Michigan State Pomological Society held its third annual meeting in the first week in December. It was stated that the signs (which almost always fail) indicated that the winter would be an open one: a mild winter was considered disadvantageous to fruit-growers, but what the Society propose to do about it is not stated. Prof. Cook stated that in the last disastrous winter orchards that had been cultivated fared worse than others; in the Grand Traverse region, where the snow is generally four feet deep, fruit culture was successful. Fruit near Kalamazoo had suffered from the drought of summer. The often vexed question of the best and hardiest grape came up. Mr. Chilson, of Battle Creek, considered the Delaware the hardiest and most money making; the Diana the best keeper; approved of covering the vines with earth in winter, and that no grapes were hardy enough for Michigan without this protection; the Iona, though it often fails, he considered a standard variety. Mr. Sterling, of Monroe, advocated Concord and Norton's Virginia. In the Strawberry discussion the Wilson was the favorite.

The Rose Gardens of France.—The rose gardens of France are celebrated. Acres and acres of roses bloom in them for the perfumer. Heliotrope, mignonette and other floral plants are found side by side with them in dense masses. The air is heavy with almost sickening fragrance, and for miles around the breezes bear the sweet tidings that "they have flown over the gardens of Gaul in their bloom." But who has heard of an English lavender field? Very few, certainly, in this country. Fewer still have seen one. Yet within thirty miles of London these lavender fields have become quite an extensive and recognized industry, and there is annually produced in England alone, sufficient oil from the plant to manufacture thirty thousand gallons of spirits of lavender, besides a large quantity, the total of which is unknown, to be used in the production of other perfumes with more pretentious names. The plant is at the best between three years of age and seven. The harvest time is the first week in August. The flowers are then cut and taken to the distillery, followed by an innumerable army of bees, which insects are especially fond of them. Here the essential oil is pressed out, and is ready to be mixed with the proper ingredients to make lavender water

Veterinary Department.

Warbles in Cattle.

(*To the Editor of the* Canada Farmer.)

Dear Sir:—Please inform me through the columns of the "Farmer" of a preventative for warbles on the back &c., of cattle, and much oblige,

W. W. *East Missouri.*

[Reply by Vet. Editor.—Warbles is the name applied to little tumors which appear on the back and loins of cattle, and they are due to the presence of an insect either in the skin or under it. They are the larvæ of the *Œstrus Bovis*, the Breeze or Gad-fly which are plentiful during the summer months, and frequently annoy cattle very much, especially during very hot weather. The fly generally attacks fine-skinned, healthy animals, and deposits its egg, which grows into a larva; a layer of lymph is thrown around it, and the whole embedded in a purulent deposit the irritation gradually producing the small tumor known as a warble.

Youatt says the "*Œstrus Bovis* is the largest and most beautiful of its genus. Its head is white and covered with soft down; its thorax yellow anteriorly, with four black longitudinal lines; the centre of the thorax is black, and the posterior part of an ashen color; the abdomen is also of an ashen color, and covered posteriorly with yellow hair. It does not leave its chrysalis state until late in the summer, and is then eagerly employed in providing a habitation for its future progeny. It selects the back of the ox, at no great distance from the spine on either side and alighting speedily pierces the skin, deposits an egg in the cellular substance beneath it, and probably a small quantity of some acid which speedily produces a little tumor on the part."

It is only when these tumors are present in very great numbers that the animal appears to suffer much irritation or annoyance from them, but they injure the skin to a certain extent. If undisturbed, the larva remains in its cyst for months, from which it finally escapes, and after remaining motionless for a time, it changes to a chrysalis, in which form it continues for some time, and then bursts from its shell a perfect fly.

The grub in the tumor may be destroyed in various ways, as by making a small incision and pressing it out, or introducing a little carbolic lotion, in the proportion of one part of carbolic acid to eight or twelve parts of water.]

Diseases Incidental to Parturition.

Inammation in Ewes.

Among sheep there is a disease which appears at the time of lambing, and in many instances the mortality is very great. It is known by many names, each locality almost having one of its own, such as Inflammation, Gangrenous Inflammation, Heaving Pains, Straining, etc. The more proper terms would be Parturition Fever, Uterine Apoplexy, or Parturition Anthrax, inasmuch as the real nature of the disease is febrile, apoplectic, and of the anthracoid type, in other words, it is similar to the Parturition Apoplexy of cows, Black Leg of young stock, and Braxy among sheep.

Sheep are unusually liable to this disease after lambing, when they have been too well kept and allowed too little exercise previously. It is due entirely to the excess of plethora, or fulness of blood existing at the time. As long as the young lambs are using the nourishment in the womb, all is well, but after they are born, there is more than required for the secretion of milk; the womb, therefore, being in this case the most favorable organ, by reason of existing conditions, the excess of blood goes there and produces fatal mischief.

The signs usually come on soon after lambing, or may be delayed to the second or third day. They consist of costive bowels, scanty, strong smelling and highly colored urine. The flank is fuller than usual, and the animal pants; the external organs of generation swollen, and by-and-bye are red and angry looking. All the symptoms of high fever come on, such as hard and rapid breathing, hot, dry mouth, rapid pulse, etc. The ewe stands with the feet drawn together and strains much, and at length is found lying on the abdomen or side insensible, the genital organs being deep red in color, purple, or absolutely black. Weakness and exhaustion rapidly follow, and the animal dies. After death, the womb is found to be covered with black spots, or large patches, and more frequently inflamed in greater part, with large spaces of extravasated blood. Occasionally there are also collections of pus, and the cause of death in lingering cases is *pyæmia*, or absorption of the elements of pus into the system.

In the cure of the malady there is not always hope of success. One principle consists in dressing the external and internal genital organs with what are known as "lambing oils," the chief ingredient of which is turpentine. This irritating application, when properly applied, gives rise to relief by suppuration, and is some proprietors of "celebrated lambing oils" also recommend their internal administration, certain benefit may arise from the turpentine by its action on the kidneys. But it must not be taken for granted that all the cases which recover from the sole use of these nostrums are those of Parturition Fever. This disease does not give way before such remedies, and we readily trace them as injuries to the birth passage or womb in the act of lambing.

Proper treatment consists of opening the bowels by means of a mixture of epsom salts and ginger (about 5 or 6 ounces of the former and half an ounce of the latter. A useful addition is 10 or 15 grains of calomel, the whole of which should be given in tolerably thick gruel and treacle. Clysters should follow. The womb may be syringed with a watery solution of carbolic acid, and the external organs dressed with an oleaginous mixture of the same. When these measures are fully carried out, the animal should be supported with strong stimulants as ammonia, nitric ether, etc., given in cold ale.

Parturition Fever does not as a rule attack a few members of a flock; there are generally many, as the great cause, rich food, acts upon all alike. The great difficulty then arises—How are so many animals to receive such close and constant attention? Under these circumstances many are unobserved before too late for good to be done, and others already affected slip through the fingers, as it were, because the right means are not used at the right time. The most reliable measures are to be put into operation before the time of lambing. It is a mistake to have ewes too fat and too full of flesh. If they are receiving large quantities of cake, etc., when carrying the lamb, as the time of parturition approaches, food of less nutritious quality should be given; and if the flock is confined to small folds and allowed the run of very rich pastures, they should be removed to others where work must be done for their living.

Common salt as a condiment is an absolute poison at these times, because it produces that plethora which proves so fatal: the exact cause of the disease.

We now notice an affection to which the sow is liable at the time of littering, and which we may term

Apoplexy at Parturition in Pigs.

As a rule there is little said, done, or written, on the subject of the maladies of the pig, and consequently that useful animal has been handed over either to the tender mercies of an ignorant quack, or left to himself, to live or die, as fate would have it. The practice among pigs is not sufficiently inviting to young veterinarians, who dream more about larger animals and larger fees. It is more cleanly and dignified to attend to horses than cattle and pigs, and so they have much to answer for the slight which has been brought upon themselves.

Parturition Apoplexy in the sow is an affection entirely due to an over plethora or fulness of blood at the time of delivery, and the particular form which it assumes may be accounted for in great measure probably by the characteristic nervous temperament of the animal. However, be this as it may, in some large pig-breeding establishments, the disease sometimes assumes serious aspects, sow after sow becoming successively affected, and the end being fatal. As with cattle, those sows that are "good doers," those which accumulate flesh rapidly during pregnancy, and acquire a superabundant fulness of blood are the likely victims. They eat well, drink well, and sleep well, indeed, the latter is an important sign and leads us often into error. We are too much in the habit of regarding these signs when combined as forming the essentials of healthy progress in all animals, and so they may be in feeding stock, but with breeding animals it is a very different matter. The character of the food may also have much to do with it. We also believe that pregnant animals require not only a larger amount of food, but, in addition, allow it rather stronger or more nutritious than usual, on the score of giving what is thought to be necessary for building up the tissues of the young, which, as they grow, make further demands from time to time on the mother.

A moderate amount of food is quite necessary; likewise it should contain a fair share of nutriment, but we should always ensure that the proper functions of the body are regularly brought into operation by the taking of daily exercise. Wherever this is observed the prevalence of the disease is considerably lessened. In the way of aliment, large quantities of artificial food are hurtful, as well as all natural kinds, particularly the leguminous seeds, as beans and peas, which are liable to produce also severe constipation. But it must not be inferred that such articles are entirely forbidden; on the contrary, let the animal, particularly in the latter stages of pregnancy, have them, but in fair and moderate quantities, always combined with such things as bran or linseed, by which the action of the bowels will be promoted. Roots also are highly useful in moderation; but a very great essential is exercise. For this purpose, a good pasture of grass is not required, nor is it wise to turn or allow such creatures to have a too free run over stubble; rather vary the ground, by taking them over bare grass or along the lanes, and on their return to the sties, supper up on food of a better quality.

Another common cause of the complaint is the practice of giving large quantities of the stale refuse of the dairy. A large cistern contains supplies added from day to day, and as the process of acid formation is constant, the digestibility of the mixture is reduced; the milk is converted into a curd, and of a very different character to the mass formed in the stomach from fresh milk, and thus produces absolute disorder of the stomach, which in turn affects the brain. In most instances the want of exercise, together with rich food, produces the direct liability, while disorder of the digestive organs may act as the proximate cause.

As soon as these conditions are fulfilled and delivery has been effected, the signs of uneasiness are apparent. The bowels are constipated, and if the tail is raised the anus is observed to be contracted, dry, and unusually clean. At a later period the sow frequently changes her position, and the little ones make much noise in searching for food. If she lies on her side, it is not for long, for in the next minute she suddenly pants and turns over on the abdomen, which posture she eventually finds to be most comfortable.

The desire for food is absent, the ears and legs become cold, the milk has dissappeared, the young pigs are clamorous and the mother pays no attention. The bag is small and shrivelled, and by pressure we fail to extract more than a drop or two of an unnatural looking fluid. If the abdomen is pressed on both sides, pain is evinced, but gentle rubbing appears to give relief. If the animal is naturally vicious or jealous of any interferance with her young, her habits become altogether changed; she is docile and heedless of strangers, and by-and-bye becomes altogether insensible, the end being ushered in by convulsions.

Medical treatment is by no means an easy matter, unless the case is seen very early and then properly made out. The first remedies should consist of a strong dose of Epsom salts—say from 1 to 3 ounces, to which 2 drams of powdered ginger and 4 or 6 ounces of treacle should be added; the whole being mixed with only so much tepid water as will make it flow easily from the drenching instrument. Some practitioners add jalap and calomel to the above, which renders the purgative more brisk. Again one to three croton beans, or as many drops of croton oil prove a very serviceable addition, but whatever form is adopted it is only likely to prove useful when used early. Besides these clysters are indispensable; mere soapy water is sufficient, about ½ pint being thrown very fifteen minutes.

Bleeding is of no service unless it is done before the brain becomes affected, and when performed, the spot selected should be the vein inside the fore-arm. If the bowels can be made to move there is hope of good, but persistent constipation with insensibility or tendency towards it are adverse signs.

As the pig is an awkward animal to receive medicine by the mouth, the use of remedies is thereby much curtailed, but after the purgative dose has been given, much good may arise from passing such agents as strychnine, &c., beneath the skin in order to rouse up the dormant nervous system. This proceeding requires great caution, and we would recommend it at all times to be left to the veterinary practitioner. —*Country Gentleman's Magazine.*

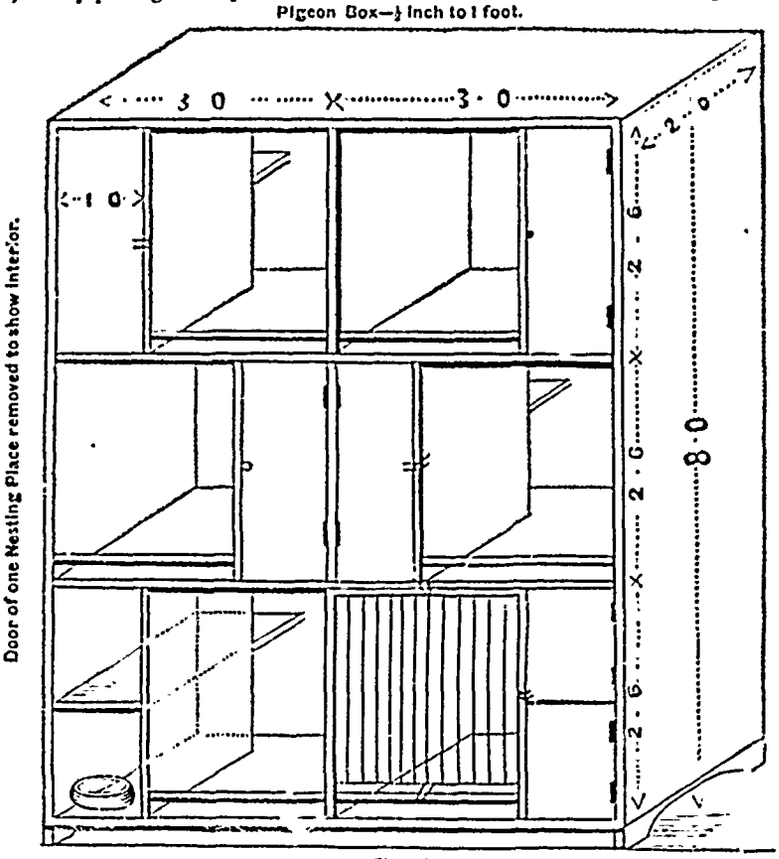
Food given to Cattle in the open air is partly wasted to supply heat; a part is wasted in too warm stables by a sweating process. Give us neither poverty nor riches.

Poultry Yard.

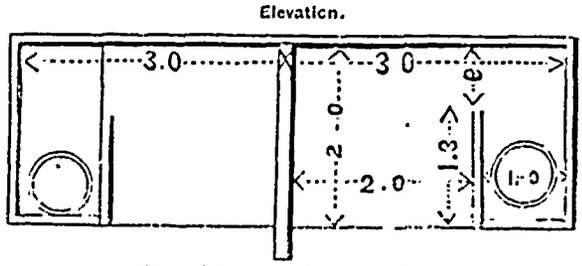
Plan of Pigeon-Box.

We are indebted to Col. Hassard for the following sketch of a pigeon-box, sent us some time since, it shows an arrangement for pigeons similar to what he advocated when in Canada, and few who knew him will deny his experience was great in this respect. It was, he says, constructed for large birds, but the fancier can alter the dimensions to suit the space at his disposal, as well as the size of his birds. If desirable, it may be made only three feet wide; it can also be made portable by any handy carpenter, if so required, and by putting a false pitched roof to the

Pigeon Box—½ inch to 1 foot.



Elevation.



Plan of Upper and Bottom Flat.

top, it would do against a wall as well as inside a loft. But let us have the Colonel's own words. "You will say, we know all this, you have told us so before, admitted, but an ounce of experience is worth pounds of theory, certainly in pigeon-keeping, so I will give my reasons for sending it I used to construct them all as in the top or centre rows, whichever place suited best, one over the other, so that except in the distance from the floor they would be exactly alike whichever arrangement you followed, top or centre. The consequence of this was that a bird making a mistake in flight, found itself in the wrong box, and being somewhat dull of apprehension of that fact, caused fights, smashed eggs &c, as I know to my loss, and to obviate it I have placed the nesting places alternately, thus causing a difference in appearance, so that they are not so likely to go wrong. Besides it is easier to construct it on this plan, as the cross partitions can be nailed in better. The bar across each nest, is for the birds to roost on at night, and to fasten a door on to, as shown in bottom compartments. I do not approve of any shelf running along the front outside; it forms a neutral ground for fights; and to prevent this, on top flat on plan the centre partition projects a little. This is by far the best plan of box, I have tried or seen."

Poultry Notes—No. 5.

Duration of the Cock's Influence.

A very important consideration in the production of pure-bred poultry, is the subject of the duration of the cock's influence over hens with which he has been mated. This subject received considerable attention a few years since, chiefly among American breeders, several of whom related their experience in journals devoted chiefly to poultry interests. One extensive breeder stated as the result of his long experience that, if the first three eggs laid after the removal of the cock occur within four days, the chickens will be his progeny, and the chick from the fourth egg, will belong to the new one, this view is confirmed by a noted American Game breeder of twenty years experience. In the case of a special experiment, in which the breeder secluded from the cock two Brahma hens, changing their locality; this proceeding, as it often does, stopped their laying after the first egg in their new quarters, and they did not lay again till the fifth day. He set the eggs then laid, but only the egg of the third, laid on the sixth day, showed signs of hatching, the rest being clear. Another experiment in which a Houdan cock was put with two Brahma hens, removing him after a few days, and setting the eggs laid, in the meantime carefully dating the eggs as laid, the third egg after the separation of one, and the fourth of the other, hatched, the rest being clear; a few days were allowed to pass and a Brahma cock was put with the hens, the eggs laid were hatched, and all the chickens appeared perfectly pure showing no trace of Houdan blood. Still another authentic experiment was mad , in which a common black hen with chickens, was allowed to be once in company with a Brahma cock, after which eight of her eggs were set, but the result was only one chick resembling the Brahma. A Canadian breeder relates his experience; he had a very valuable pair of black Spanish fowls, the cock died very suddenly, the hen only having laid some four eggs previous to his death. Being anxious to secure as many chickens as possible he retained seven eggs laid after the cock's death, all the while keeping the hen secluded. He hatched the eleven eggs, the result of which was seven birds, three of which were out of the eggs laid after the cock's death, the remaning four of the seven proving unfertile. All the foregoing experiments go to prove the cock's influence to be of short duration only; other experiments carefully made, do not carry out this view. A noted New York breeder, allowed a hen which began to lay while with her chickens, to remain several hours with a cock and then set the eggs, three of which contained chickens. Another a resident in New York State, separated a Buff hen from the cock, after which she laid sixteen eggs, of which fourteen produced chickens. Another case is mentioned in which both Cochin and Dorking hens were separated from the cock, and for six days afterwards the eggs proved fertile, and still another experiment shows that eggs laid ten days after the death of a Brahma cock, by a hen with which he had been running, proved fertile, but after a two days' cessation all the eggs were barren.

It has long been the opinion of eminent breeders that notwithstanding the foregoing experiments; made only to determine the question of fertility, that the cock's influence extends further, and experiments on this point as well as to ascertain fertility, have been made by other gentlemen interested, and Mr. Wright, in his *Poultry Book* relates some of them. A Mr. Payne, in England, had two Spanish pullets running together with both a Spanish and a Cochin cock; after they began to lay the Cochin cock was removed, and six weeks after the eggs were saved and set; the chickens were feather-legged, but in all other points resembling the Spanish. On another occasion the same gentleman, allowed a black red Game hen, which laid while with chickens, to run a few hours with a brown red cock, and nine eggs produced chickens, which all resembled the father a Brown Red. Another English gentleman while residing here in Canada, sold his Brahma cock and one hen, allowing the hen left to run afterwards with a Spangled Hamburgh cock which had five hens of his own, every egg laid for ten days produced a pure Brahma chick, that laid on the eleventh day was a half-bred. Other experiments are warranted; a gentleman bought in March, some Spanish pullets, which had been running all the winter with a native cock, and though no eggs were set till two months after purchase, all the chicks even then showed the native points in a high degree. Still another gentleman, a breeder of Game fowls, finding a neighbor's feather-legged Bantam cock come over his fence, penned his fowls securely, and saved no eggs for a month after, the eggs set after this produced chicks with feathered legs, although with no other signs of the cross. And the editor of a poultry paper relates how on one occasion a light Brahma cock found his way for one day only, to some Danvers white hens, of his own, and afterwards some of the chickens had the cross very distinctly, some showed very little of it, and others none at all except very evident traces of feather on the legs.

In the case of turkeys it is well known from almost universal experience, that a single visit of a turkey cock fertilizes the whole batch of eggs afterwards lai-

by the hen turkey, and in connection with this it may be remarked that after beginning to lay, as a rule, she avoids the turkey cock, whilst on the contrary the common hen never does this, which at once suggests the idea that nature has provided each with a different reproductive economy, otherwise the common hen would not continually remain in company with the cock during laying. Carrying this train of thought still further it will suggest the idea that there may be other differences between different breeds, and varieties of breeds, and even between individuals in this respect, one thing however appears quite evident, no invariable rule can be laid down, although we may draw certain general conclusions. Indeed this is the only means of reconciling facts so apparently conflicting as those mentioned, and when thoughtfully considered this will not appear as a mere theory, inasmuch as in some breeds the whole reproductive system has become so modified that the naturally essential incubating instinct has been lost altogether, and again in other breeds developed to an extraordinary degree. As instance Hamburghs, Spanish, Leghorns and Houdans in the one case, and in the other, Cochins, Brahmas, &c. So too, has the natural production of eggs been increased by domestication in some instances ten-fold; is it not therefore reasonable to suppose that other differences will occur in their productive economy. Other considerations have also to be considered in regard to the fertilizing of eggs Experiments have proved that eggs may be so far fertilized as to commence hatching, and yet not have sufficient vigor to complete the process successfully The cases already cited show the large number of eggs in which signs of hatching were perceptible, fertilization had commenced, but want of sufficient vigor prevented its successful completion, these facts will not be lost sight of by the intelligent breeder, and will stimulate him to the further enquiry, that the act of union may exert beyond fertilization, a more mysterious and far reaching influence. From the information already obtained, the general conclusion to be arrived at is, that in every case the influence of a cock, when not over mated, extends for at least four days after separation, in many instances to nine or ten, and in some special instances it has even lasted for fifteen or sixteen days, but in such extreme cases as the last mentioned, the vigor of the stock bird, and the number of hens with him have to be considered. Many good breeders allow all their pullets to run together till the time comes for separation, but with the experience which we have gained from the foregoing experiments, the conclusion to be arrived at is, that where breeders can so manage, it is best to keep each breed separate even from an early age, which prevents untoward alliances. So far as we can form a judgment, the strength of proof seems to be in favor of greater effect of first unions with different breeds to be on the progeny of pullets, than if it had taken place when hens of two or three years old. And we can only therefore repeat what has already been said in a former paper, that the first union is often traceable in some degree through the whole life of that hen, more especially if the cock, with whom the union has taken place presented any strongly marked conspicuous characteristics, but we must not be considered in stating this, that we incline to the belief that subsequent unions are not more or less productive of permanent ill effects.

Prevention of Gapes.

A great deal has been said on the cure of gapes and but very little on the *prevention*, but we believe in the adage that "an ounce of prevention is worth a pound of cure." A few years ago, on account of not having a sufficient supply of wheat screenings—our usual feed for young chickens—we commenced feeding whole corn to the larger ones, and were surprised to see those not more than a few weeks old pick out the small grains and swallow them. We continued feeding corn, except to the quite small ones, and we had the pleasure of noticing that our young chickens were free from gapes during the entire spring, while other years this disease had been a source of great annoyance to us. The following spring we fed nothing but corn to our young chickens—the first few days after being hatched, corn meal moistened with water, then coarse cracked corn until they were a few weeks old, and after that whole corn—and not one showed any symptoms of gapes. Since then we have pursued the same plan with the same result, not one of our chickens being affected with the gapes during the last three years. We pick out cars with small grains for them when quite young and before they can swallow large grains. We attribute this freedom from gapes entirely to the feeding of corn, as we pursue the same plan of management, as before, when our raising early young chicken was attended with much difficulty and poor success, in consequence of the gapes. If feeding corn in this manner has been the cause of preventing the gapes, we can give no reason why it is so, but we simply give our experience, and hope others may be induced to try the same experiment and let the public know with what success."

If the preceding directions are fully adhered to, chickens can be raised successfully.—*Lancaster Intellegencer.*

Poultry Keeping.

Within the last twenty years, the improvement in the breeds of Poultry has been on the increase. Foreign importations have contributed largely to this, and every importer of superior stock for breeding purposes, deserves the thanks of the country. With this improvement has increased the demand for both poultry and eggs; and small farmers cannot do better than turn their attention in this direction. There is just as good a range for poultry on a farm of twenty or thirty acres as on one of five hundred acres.

In the neighborhood of a Market, Town, or City, or within reach of such by railroad, the growing of poultry and eggs is very profitable and the demand increases with the supply, so that there is no danger of over stocking the market. The time spent in attending to this is so small that it is not missed from other employments, but is rather a recreation.—*American Stock Journal.*

The Apiary.

High Farming and the Honey-yield.

Mr Gallup, a noted bee-keeper in Iowa, (formerly of Lower Canada, by the way), is of the opinion that climatic or atmospheric influence sometimes causes plants to produce bee forage in one locality and not in another. It is complained that buckwheat yields no honey in some places, and that it is not good for much anywhere in a dry or cool season. Mr. Gallup thinks heavy manuring will secure a honey yield from white clover, buckwheat, or any description of bee forage, no matter how dry, cold, or hot the season. The warmth and vapor induced by manure, are favorable to honey production, and little or none can be expected from an impoverished soil Mr. G. says. "I have seen a row of currant bushes that had been heavily manured the season previous, all alive with bees; while a row that was not manured was not visited by the bees at all. I have seen a four acre patch of white clover that had been heavily manured the season previous, covered with bees, while the clover field by the side of it was not visited by a single bee. I have had some buckwheat on poor land, and on rich land at the same time. That on the poor land was not visited, while that on the rich land was fairly alive with bees, and scented the atmosphere with its sweet aroma."

A delicious argument in favor of good farming.

The Bee Malady.

To what cause can the wide-spread disasters of '72 and '73 be attributed? To dysentery? I answer no. It is well known to those who kept pace with the science of bee-culture, that a large majority of the most eminent apiarists, a few dissenting, attributed the losses of '72 to dysentry. Lane upon lane, was written in support of this theory. Carefully have I perused the many able articles as they appeared in print, hoping to find a satisfactory solution of the matter, yet I have failed to see it, and to me the cause remains unknown. But what of the fatality of the winter just past? is it dysentery? I again answer negatively. Let us deal with facts, and not time-spun theories, remembering that theory does not always teach what we might anticipate practically

November last I had one hundred and thirty three colonies all in good condition. I stored one hundred and eight in a good, warm cellar, and the balance, namely, twenty five. I wintered out, they were, however, protected from, storms wind and the entrance contracted. With what results say you? Out of that number, seven were found dead, and all more or less reduced. Now I am satisfied that not one died of dysentery, notwithstanding evidences of that disease were present. They perished from cold, they froze, dysentery being a result and not the cause. It is well known to every medical man, that involuntary discharges of fæces not unfrequently takes place on the human subject before death consequent upon a low degree of vital activity. It is the last act, it is the death signal, whether of the bee or mortal man. Hence the idea of dysentery. Let us turn our attention to those wintered in the cellar. The aforesaid one hundred and eight came out without the loss of a colony, or a queen. The comb bright, strong, and no evidence of dysentery. Now be it remembered that they set in the same yard and gathered the delicious nectar from the same range. Query: If death was the result of dysentery on the first, is it not strange, remarkably strange, that not one of the latter had the least evidence of the disease? Surely it is. The idea that dysentery kills all the bees that die, is a novel one to me, and reminds me very much, Messrs Editors, of a celebrated quack doctor, who indiscriminately pronounced all of his patients wormy. A little girl tripping along one fine day accidentally fell over a stick of wood and broke her leg. The doctor was sent for in great haste, who rushing into the presence of the little sufferer, gazed at her for a moment, then turning to the mother with an air indicative of quackery only, says "Madam, this is a case of worms"

"But," says the mother, "are you not mistaken, doctor? The child fell over a stick of wood and broke her leg."

"Madam, worms in the wood, worms in the wood!"

Worms it was, and worms he would have it. Just so with the bee malady; dysentery it is and nothing else. Not a colony of bees die, but it is at once put down to dysentery. It is not only true of bees, but it is true of hogs. Scarcely a hog dies but it is immediately charged up to cholera. *All* bees do not die of dysentery, no more than all hogs die of cholera. In fact, I doubt very much, that bees ever die of dysentery, indeed, I am forced to the conclusion that it is not an idiopathic affection of the bee. I do not wish to underrate this matter, but I do wish to condemn this everlasting prating about dysentery, making it the monster malady, with which the apiarian has to contend. If we would talk less about it, and more about taking proper care of bees, the novice, I apprehend would find it of more profit. The proper care of bees is the all important question and not dysentery. Your success and my success depends upon the former, the latter being a contingency only; dysentery is no scare-crow to frighten me from this beautiful and interesting branch of rural industry. It is proper to remember that those lost most bees, who wintered out in a cold, damp cellar, or an outhouse, nearly all perishing in the latter named place, being equally as destructive as those left upon their summer stands. —*Cor. Bee Journal.*

Dzierzon watched a queen bee when laying, and noticed that she laid eighteen worker eggs in three minutes She appeared to dispatch business still more expeditiously when laying drone eggs.—*Am. Bee Journal.*

The most complete check upon robbing bees is to place a bunch of grass, or wet hay over the entrance to the hive. The bees will find their way to the entrance to their own hive, the robbers will be caught by the sentinels in passing through the grass, and soon cease their pillering.—*Exchange*

Increase Surplus, Etc.—B. Franklin, Scho. Co., N. Y., from sixty stocks, raised 3000 pounds box honey, and 1000 extracted. Ten hives averaged over 100 pounds box honey to the hive, in two and a half and three pound boxes. He is wintering thirty stocks in the cellar, and forty-four out-doors, wrapped in quilts stuffed with chaff.—*Bee Journal.*

Bee Keeping for Farmers. Some have adopted bee keeping as the business of life, and these have mostly attained a flattering success. Others engage in it as a pastime and amusement chiefly. Apiculture has made great advances of late years. The intelligent bee keeper no longer consigns his favorite to a hollow log, or rude box, nor what is even worse, to any of those absurd contrivances which have proved the ruin of thousands of happy colonies of bees, and provoked the disgust of their unfortunate owners. But providing himself with some form of movable comb hive, well constructed, and having a sufficiently capacious brood chamber (or main apartment) and suitable arrangement for surplus honey, he enters upon the pursuit with fair prospect of success Those who have once learned how to keep bees, will not soon abandon the pursuit.—*Western Agriculturist.*

Bee Notes from Darwin.

Bees have solved a recondite problem. They have made their cells of a proper shape to hold the greatest possible amount of honey, with the least possible consumption of precious wax, in their construction.

No human workman is skillful enough to do what a crowd of bees can do—working in a dark hive—make cells of wax of the true form.

The number of humble bees in the country will depend upon the number of cats! How can that be? Because the number of bees is dependent upon the number of field mice, which eat the bees. Hence the more cats, the fewer mice; and the fewer mice, the more bees.

If the whole germs of humble-bees became extinct, or very rare, the heartsease and red clover would become rare, or wholly disappear. How is that? Because bees promote the growth of those flowers. The visits of bees are necessary to the fertilization of some kinds of clover, and almost indispensable to the fertilization of the heartsease, for these bees do not visit this flower. Humble bees alone visit red clover as other bees cannot reach the nectar.

In a word—no bees, no seed; no seed, no increase of the flower. The more visits from bees, the more seeds from the flower; the more seeds from the flower, the more flowers from the seeds.

Nearly all our orchidaceous plants absolutely require the visits of insects to remove their pollen masses and thus to fertilize them.

Twenty heads of unprotected Dutch clover yields 2,990 seeds. The same number protected from bees produced not one seed; 100 heads of unprotected red clover yielded 2,700, and the same number protected from bees not a seed.

RAPE AS A HONEY PLANT.—In Wisconsin, where rape is largely grown for the seed, which is crushed to produce the colza oil of commerce, it is found that the flowers are very attractive to bees, and that they derive a large amount of honey from them. Rape is a very valuable forage plant, and is especially good for hurdling sheep. A patch eaten off by sheep is left in excellent condition for a grain crop of any kind. Rape should be sown on good, productive soil, and forms an excellent element in a rotation of crops. It is thus that bee-keeping dove-tails in with the general economy of the farm, sustaining the idea that an apiary should be regarded as a necessary part of every homestead.

IS BLACK COMB USEFUL?—Black comb, unless it be very old and choked with pollen and filth, is as useful for breeding purposes as any other. For guide combs it is better than any other, as it is tough and will not break away from its fastenings as new comb will. Care should be taken, notwithstanding, to discard all comb from which the bees of former seasons have not hatched out. Sometimes in old combs some cells may be observed from which the sealing has not been removed, some such cells may have small perforations in them; their crowns being sunken, and their contents dried up; others may still retain the remains of dead brood, but wherever these are seen the comb should be consigned to the melting-pot, for there is danger that the combs are infected with foul brood.—*British Bee Journal.*

PRUNING BROODS.—Pruning brood combs is generally quite unnecessary, in fact is more often injurious than otherwise. If they ever require excision, it can only be when they are so overcharged with pollen as to render breeding impossible, in which case the operation should be performed in the spring. Pruning them after the bees have swarmed and cast, is very unwise, for several reasons. First, there is a possibility that during a glut of honey, the bees would build an excess of drone comb, or supposing their queen to be lost, that they would build drone comb exclusively, if any; second, that having to replace the excised comb, they would be less likely to yield a surplus in their super; and third, there is the undoubted fact that bees winter much better in old combs than in new ones, because being coated with so much silky fibre, they are the warmer of the two, and again there is the chance that in an unfavorable season they may be unable to build any comb at all.—*British Bee Journal.*

Implements of Husbandry.

Use For Old Mowing Machines.

In company with W. H. Mathews, of Cornwall, I visited one of his neighbors to see a horse-power arranged for churning, and constructed out of an old mowing machine. Several are in use in that town. The cost seems to be but slight, and utilizes almost worthless property.

Take off one driving wheel, and in a place near the place of churning fix upon firm timbers the mowing machine with its remaining driving wheel uppermost. Upon this driving wheel a lever about ten feet long is fastened with bolts; to this lever the horse is attached, and as he walks in a circle around the machine propels its gearing. The pole of the mowing machine, fastened by bolts to the same wheel that formerly gave the vibratory motion to the cutter bar, now extends horizontally along the ground and on its end outside the circle of the horse's walk is placed a wheel upon which the rope belt runs, connecting it with a similar pully on the end of the Sanborn churn. Hitch the horse to the lever, and the machine churns. Let us review this matter because the subject is important, and see what changes are to be made: 1st, one drive wheel off; 2nd, tipped up on edge and braced so as to be firm; 3rd, a lever bolted to the drive wheel; 4th, a horizontal revolving bar having on its end a pulley wheel; 5th, a pulley wheel on the churn; 6th, a rope belt from one pulley to the other; 7th, all will see that the horizontal revolving bar over which the horse steps must be fastened near its end to keep it in place; a post or bed piece firmly fixed can be adjusted; 8th, fasten your churn; 9th, watch your churn and take off the horse as soon as the butter begins to come.—*Vermont Farmer.*

A Manure Spreader.

Procure a large pole, about ten feet long and six inches in diameter, and secure a tongue to the middle, so as to form a large "T." The tongue may be bolted or secured by mortise and tenon. After the tongue is made fast, set it up in a perpendicular position and bore two-inch holes through the head-piece, one foot apart. Now fill the holes with strong spreading brush, letting the brush extend behind the crosshead from four to six feet. The more brush one can fasten in the holes the better.

After the manure is spread with forks, hitch a team to the tongue, place a board on the brush behind the cross-head, and let the driver stand on the board as the speader is driven across the field, back and forth like a harrow, and the brush will then spread and grind the manure into the ground and pulverize the lumps more perfectly than could be done by hand. A man and horse team can spread an acre per hour of any kind of manure.

Such a spreader will be found useful in preparing land for seeding after it has been harrowed, as it will crush the lumps, fill up the dead furrows and leave the field like a garden bed. In lieu of a large pole, a heavy slab or narrow plank may be employed for the spreader.

The spreader should be driven at a right angle to the first course, whenever all the bunches are not ground fine and spread evenly. Winter is the true time to make such labor-saving machines, so as to have them ready for use when one has manure to spread.—*N. Y. Herald.*

AN IDEA FOR TEAMSTERS.—A great deal of labor and hard tugging may be saved if every waggon or truck is provided with 100 feet of stout rope and a single pulley. A snatch block is the best arranged with a strong hook, and the usual construction for slipping the tight of the rope under the strap to the sheave instead of waiting to reeve the line through on end. If a waggon gets stuck in heavy mud or in the snow, the driver has only to fasten his block to the tongue, reeve the rope through it, and attach one end to a tree or post and let his team pull on the other. Their work is of course just halved, or rather they bring twice as much power to bear in dragging the waggon clear. There are plenty of other applications of this simple device, which will readily suggest themselves. With a couple of skids for an inclined plane, heavy logs could be easily drawn on a sleigh by the unhitched team. Another case where it is likely to be useful is when loaded sleighs attempt to cross a wooden bridge. Although the horses draw the load very easily over the snow, they are often unable to start it over the generally denuded wooden flooring of the bridge, and hence would be materially aided by the tackle hitched on as we have described. —*Scientific American.*

WOODEN COLLARS.—The Maryland *Farmer* prints the following argument in favor of wooden collars:—The present huge collar chokes the horse in summer, and chills him through the lungs in winter. A collar made of white basswood or other light, tough wood, would never heat, gall, or chill a horse. Experience has demonstrated that a hard wooden surface, polished and kept clean, is the surest, coolest, best and healthiest collar ever used. They will only weigh one third as much as ordinary collars, and unite hames and collar in one. No rough surfaces are worked up; no sweat is absorbed to cook a scald; fresh air passes round the collar, evaporating the moisture and keeping the skin dry; the hair is not chafed and fretted. During the war, it was found necessary to remove an equipment factory in the South, 500 miles. The number of collars for the teams employed was insufficient by forty, which number was made of wood, polished, and tied on by ropes on each end.—At the end of the tiresome journey, all the horses and mules that used the ordinary collars were severely galled—nearly ruined, and for a long time unfit for service; whilst those that wore the wooden collars were ungalled and ready for use as usual. Several planters, also unable to procure collars during the war, made them of wood, and conducted their business with success, and comfort to their mules and horses.

WHAT IS MEANT BY A HORSE POWER.—The power of prime movers is measured by horse power. Watt found that the strongest London draft horses were capable of doing work equivalent to raising 33,000 pounds one foot high per minute, and he took this as the unit of power for the steam engine. The horse is not usually capable of doing so great a quantity of work. Rankine gave 26,000 foot pounds as the figure for a mean of several experiments, and it is probable that 25,000 foot pounds is a fair minute's average work for a good animal. It would require five or six men to do the work of a strong horse. Watt's estimate has become, by general consent among engineers, the standard of power measurement for all purposes. —*Scientific American.*

After a wooden pulley is turned and rubbed smooth, boil it for about eight minutes in olive oil: then allow it to dry, after which it will ultimately become almost as hard as copper.

Correspondence.

Our Winter Wild Birds.

(*To the Editor of the* CANADA FARMER.)

DEAR SIR:—One day during our last snow storm, while paying a visit to that well known orchardist, farmer, and sheep-breeder, Fergus Anderson, Esq., of Blenheim, I witnessed a sight most pleasing to every lover of natural history, and interesting to any one who takes a pleasure in noting the habits of our *feræ naturæ*, and observing how the law of kindness influences even the shy denizens of our woods. After breakfast, our host taking some bread and half-picked bones from the table, proceeded to the garden to feed his "pensioners." At his call in a minute he was surrounded, first by a flock of Tomtits (both the larger and smaller), the familiar "Chickadee" of Canada schoolboys, which perched themselves along a trough placed in the boughs of some of the trees and trellis supports in front of one of the windows. Soon they were busy at breakfast on the crumbs provided for them, some even venturing to peck at the bone which their benefactor held in his hand. Next came a few of the smallest species of woodpeckers, the handsome, little, active, slate-colored, needle-beaked variety, commonly called "sap-suckers." These were followed by two or three of the common grey speckled woodpeckers, and lastly came a pair of blue jays, at whose presence the smaller pensioners seemed to feel some awe or respect, for they either gave them a wide berth or betook themselves to a neighboring tree with a good mouthful for leisurely swallowing. The blue-jays, which were seemingly in good condition and splendid plumage, behaved with great nonchalance, not to say greed and audacity. Gobbling up large morsels of the broken bread, gulping it down, and finally when apparently temporarily satiated, carrying off a goodly quantity with which they stuffed their beaks and even throats to

repletion, and I have no doubt conveyed it to some larder in a hollow tree. Some peameal-mixed bread was given them that day, but after trying, all turned from it and seemed to prefer the wheaten loaf bread. All, however, seemed to have the most relish for the beef and mutton bones for the sake of the pieces of flesh and gristle attached, but more especially for the fat and marrow, of which the tomtit and our old country robin are remarkably fond, as we know by experience. These were all insect-feeding birds, but as the yield of insect food must, even to the sharp bill of the woodpecker and jay, be rather precarious in winter, the law of necessity compels them to adapt themselves gladly (when they can get it thus liberally provided) to vegetable fare. When we remember the law of nature that leads us human beings so readily to swallow fat meat in order to supply the system with the increased carbon required in winter, we can easily understand what a *bonne bouche* these greasy bones are to the creatures aforesaid With the exception of the shy, cunning crow and the snow bird, these individuals above mentioned may be said to comprise the most of the birds which remain with us in our woods during the Canadian winter. I do not remember ever seeing the handsome red, black, and white woodpecker in winter Indeed he is only a short visitor in some localities in summer, some seasons being much more common than in others. The mis-named "Meadow-lark' has, however been observed by myself and others to remain occasionally over winter, notably so this winter, which has been unexceptionably mild, so as perhaps to have induced others of our usual migratory birds to remain along with us.

A question put by my friend and one I have often heard mooted is "Does the blue jay kill other birds and devour their eggs?" I am afraid the testimony of all observers is against him as an offender in this wise both here and in England among his cognate tribe. Gamekeepers persecute him as a bird of murderous repute, and our own jay I see is credited by Wilson, Webber, and other American ornithologists, with killing small birds, fledglings, and carrying away the eggs of the weaker inhabitants of the bush. In fact no better bait to trap a jay can be set than an egg. But if the jay is guilty of harrying the nests of other birds, he is liable to have reprisals made not by the other birds but by a foe that would little be suspected —and that is the red squirrel A summer or two ago a pair of robins built a nest (or rather attempted it) in a tree at the foot of our garden, while a pair of blue jays took up their quarters in a thick balsam close at hand Though no bush was near, yet a red squirrel was to be seen every morning dodging about the trees and annoying the robins so much that they at last abandoned their nest. The squirrel next turned his mischievous attentions to the jays, who by this time had finished nesting and hatched out young. As in the case with the robins, the combats between the squirrel and the parent birds were of daily occurrence, and by the noise made by the birds attracted attention from all in the house. Finally one morning early the female jay was found on the grass walk below the tree in a most pitable state, its feathers torn, draggled with dew, and scattered on the ground, and in such a state of weakness as to be unable to fly or almost move. It was taken into the house along with the nest, which contained five half-fledged young ones, where it died in a few hours. A terrible battle had evidently been waging all the morning before the household was up, and the result was the death of the poor mother in defence of her progeny. But alas her devotion to the death was in vain, for all our efforts to rear the young jays were abortive. Probably from not knowing the proper food to give them, one by one they died before the end of a week. It is evident that eggs or young birds was the object of the squirrel in thus pertinaciously attacking the nests, and the fledglings were probably only prevented being carried off by our timely arrival at the scene of strife. I would be glad to hear if any of your readers who devote attention to the habits of our wild animals, whether beast or bird, ever met with any such instance of a carnivorous propensity in our common red squirrel, of whom I may have more to say anon, if this communication be deemed of interest enough for a space in your excellent journal.

Yours, &c.,

A. Fisher.

Blenheim, Oxford, Feb. 20th, 1874.

Sandcrack or Fissure in the Horse's Hoof.

(*To the Editor of the* Canada Farmer.)

Dear Sir:—In a late issue of the *Weekly Globe*, I noticed an article from the *Farmer* (Eng.) on "Sandcrack or Fissure in the Hoof." I think the writer makes a great mistake with regard to the *cause*. He says. "The immediate cause of fissure is unnatural strain, weight unequally diffused throughout the hoof, which ensures pressure in opposite directions, and the result, tearing open or separating the substance of the hoof at a point midway from the extremities of other parts subjected to the action."

I have witnessed a great many cases of sandcrack and I never knew of one caused in the way he describes, but invariably commencing at the *top* of the foot, and produced by the coronet being either divided or seriously injured, and in most cases from being "caulked," either by the other foot of the horse or by the horse working alongside of him, in double harness; causing the new hoof to grow divided from the top or injured coronet, until it reached the bottom of the foot, that is, all the new hoof formed after the coronet was divided partaking of the same formation as the divided coronet.

With regard to the mode of treatment recommended I have no doubt but it is very good. The mode of cure adopted by myself, and which has in a great many cases been very successful, is as follows —

1 by stitching up the crack in one or two places with a piece of wire or a light horse nail, taking care not to pierce the hoof too deep to injure the sensitive parts. This is not done with a view to healing up the crack because as the writer in the "*Farmer*" correctly remarks "fissure in the hoof never unites or closes," but to prevent the future formation of hoof at the top of the foot from being strained or opened by the spreading of the old divided hoof below. This being accomplished, I then cauterize the wounded part, or caulk, repeating if necessary, always greasing, as after blistering. In this way I have generally been successful, the new hoof at once commencing to grow united and sound from the top until in course of time it reached the bottom, as the old split hoof is worn or cut away. The foot should never be without a shoe.

BLACKSMITH.

Londesborough, 20th Feb., 1874.

Corn Fodder.

(*To the Editor of the* Canada Farmer.)

Sir:—Can you inform me through your paper how I may become a member of the Agricultural and Arts Association of Ontario? Please describe the best method of raising corn for cattle feed, the proper time to sow, quantity of seed to the acre. &c. Is coal tar used for coating shingle roofs, and which is preferable, it or fire-proof paint?

A Subscriber.

Reply:—(1.) Send your address in full and the regular fee of $1, to the Secretary of the Association, Mr. Hugh C, Thompson, of this city, who will always be most happy to furnish any information required.

(2.) Commence planting on heavily manured soil about the 20th May, or as soon as the seed can be got in, and continue planting at intervals of a week or ten days until the end of July, or even into August. Plant in drills 2½ feet apart, covering the seed to a depth of 2½ inches, and cultivate occasionally. See articles on "Soiling," pages 43, 82, &c., Canada Farmer, vol. x., 1873.

(3.) Coal tar is a cheap and excellent material for coating roofs, but is open to one serious objection, viz.: That it taints water to an extent which renders the latter totally unfit for drinking or domestic purposes. For this reason alone we would much prefer paint.

Something about Wells.

(*To the Editor of the* Canada Farmer.)

Sir:—I have often noticed articles in your valuable journal discussing many questions of great practical importance to its numerous readers. At present I cannot bring to memory of ever reading anything about wells. I am not going to state whether I am a well-digger or not; but let that be as it may, I feel that I have gained much information by reading the experiments of others and therefore consider that I should now return something in lieu of what I have acquired.

Mostly all farmers must dig a well and many of them have more trouble after they have it dug than they have digging it, what is termed quick-sand is generally the greatest source of trouble in many localities of Ontario.

Cribbing is a common plan to overcome the caving in of a well; but if a well is cribbed the water will taste of the timber for some time. Hemlock is preferable for cribbing, for it will not taste like cedar or pine wood, and it will last the longest under water.

Mossing is another plan which some people adopt. This ingenious process is performed somewhat as follows:

After the stones and moss are ready the man in the well receives a bucketful of stones which he arranges in a row at the outside or next the walls as solidly as possible, then a bucketful of moss is let down. He takes this moss and stuffs all the holes between the stones just as a mason would fill with mortar, then puts on another layer of stones, and so on with his moss until he is above where the water oozes through the sand. Now instead of mossing, where cribbing is not essential, I would suggest common clay packed as described. The water will ooze through the clay and give a sweet flavor which cribbing and mossing will not, and as no sand will come through if properly executed, the stones will remain solidly as left for any length of time. Sometimes men's lives are in great jeopardy when they descend into a well, where the sand has come into the well, for where this is the case a hole is left behind the stones which leaves room for a portion of the wall to fall into it, and when a man goes down and moves some of the stones, the chances are that the whole wall falls in and ends his days by burying him alive, a death more to be shunned than admired.—

An ex-Farmer.

Hide Bound Cow.—I have a four-year old cow that is hide bound, and have done all that I know to cure her, I feed high and curry well but of no avail. I would like to have some one "who knows" inform me through the *Country Gentleman* what to do and also what would kill lice on cattle, and not injure the hair?—T. *Mingo, Ohio, Jan. 25.* [Keep the cow in a *warm stable*, feed her for a few days a dose of 1 tablespoonful of "syrup of hypophosphates" once a day; feed regularly 2 qts. corn meal, 2 qts. bran, and 1 lb. oil-meal, mixed and scalded, each day at two feeds; feed all the good hay she will eat; increase the meal to 4 qts. after a month; wash here and the rest of the cattle all over twice, at an interval of a week between, with tobacco water, for oil thoroughly with fish oil) to kill the lice, followed with a washing of weak soap suds to clean the skin.

Foot-and-mouth disease is very prevalent in the Metropolitan Market, Islington, London.

THE CANADA FARMER

IS PUBLISHED

ON THE 1st AND 15th OF EACH MONTH,

AT

One Dollar and Fifty Cents Per Annum,

FREE OF POSTAGE.

It is sent to Great Britain and Ireland by mail, for six shillings sterling, *per annum*.

No subscription received for a less term than one year, commencing from the month of January.

THE CANADA FARMER is stereotyped, so that copies of back numbers can always be had.

A limited number of advertisements are inserted at twenty cents per line for each insertion. There are twelve lines in one inch of space. Advertisements under ten lines are charged as ten line advertisements.

All letters and money orders are addressed to

THE GLOBE PRINTING CO.,

TORONTO.

☞ Agents wanted in every town and village in the Dominion to canvass for subscribers. Liberal commission allowed. Send for circular stating terms.

The Canada Farmer.

TORONTO, CANADA, MARCH 16, 1874.

Prospects of the Wheat Crop.

During a recent hasty trip through the Counties of Wentworth, Oxford, and Waterloo, we were very much pleased to observe the splendid appearance of the wheat crop. Farmers of many years standing, with whom we conversed, were unanimously of the opinion that should the present favorable weather continue, the crop will be the largest for several years past. Indications of an open and early spring are daily becoming more apparent. Large flocks of wild geese have been seen crossing the lake *en route* to their summer haunts, and robins and other spring birds have made their appearance in many places. Everything, in short, points to a speedy resumption of regular farm work, and it behoves such of our agricultural friends as are not fully prepared for the emergency, to be "up and doing" at once.

North Dumfries Farmers' Club.

The monthly meeting was held in the Council Chamber, Galt, the President, T. Buchanan, Esq., in the chair. A letter from Professor Buckland was read, stating that he would be happy to address the Club at the next meeting on the subject, "What are the best means to be employed to renovate exhausted soil." Prof. McCandless, of the Model Farm, who was expected, telegraphed that he had to go from home, and could not possibly be present. Mr. Elliot read a brief but pithy essay on the "Cultivation of Barley," which gave rise to some discussion, during which it was pretty generally agreed that the application of a mixture of salt and plaster to barley was productive of the most beneficial results. A difference of opinion, however, existed as to the effects of a similar application to root crops. The subject for discussion, viz.: "Barnyard Manure" was next taken up and opened very intelligently by Mr. Barrie. With reference to quality, horse manure was accounted the best; that of hogs, second; and that of cows, the poorest. Fowl manure was also spoken of as most important, and eminently worthy of preservation. Mr. D. Allen, of Galt, being instanced as one who appreciated this fact by saving his fowl manure at the rate of one barrel per week, and selling it at $1 per barrel. In the discussion on the preservation of manure all were agreed that the various kinds should be mixed together and kept under cover if possible—or at least laid in heaps and afforded such protection as would prevent as much as possible the injurious influences of sun and rain. As to mode of application, some took the ground that manure should be laid out in the fall and ploughed into the ground in spring. Others again opposed this plan from the fact that whatever leachings took place found their way into the hollows, and advocated rather the application of the manure fresh in the spring. The question of sawdust being raised, it was generally condemned as a manure *per se*, the good results arising from its application being wholly due to its power of absorbing and retaining moisture.

County of Peterboro' Horticultural Society.

The annual meeting of the above Society was recently held in the town council chamber, the President, Rev. V. Clementi, in the chair. After the reading and confirmation of the minutes, the President delivered the annual address. M. Clementi was appointed delegate to the Provincial Exhibition. The Annual Report, which want of space prevents us from giving in full, represented the society as being in a very flourishing condition, the only cause for complaint being a lack of local interest. On this point the report spoke as follows:—

Your committee cannot, however, but deem it a matter for regret that so many of their fellow-townsmen, possessed of gardens, and well-furnished gardens too, will not take the trouble to contribute to the success of the exhibitions by sending specimens to enhance the beauty of the shows. The prize list is liberal, and, even were no money prizes offered, it might surely be expected that, if only for the sake of fostering a taste for the cultivation of flowers and other products of the garden, our neighbours might be induced to incur the small amount of trouble involved in helping to furnish the society's tables.

The following officers were then elected for the year:—President, Rev. V. Clementi; Vice-President, A. W. Kempt; Secretary and Treasurer, George Barlee, and a Board of Directors.

The Farmers' Library.

Should a farmer have a professional library? Why not? It is just as absurd a question to ask as whether a physician, theologian or lawyer needs one! Of course there are wiseacres among farmers who turn up their noses at all books and snicker whenever book farming is mentioned—that's the word. "snicker;" or such men, as a rule, have not brains enough to give tone to an intelligent and sarcastic laugh, born of thoughtful and honest conviction. One will see these very wise fellows running straight to a book-farmer the moment they have a cow that chokes or does not "clean," or a calf bloated with boven, or a horse lame, or a chicken with the gapes, or a pig with sore kidneys, or a bee-hive that don't yield honey, or "butter that won't come," or wheat that turns to chess, or onion seed that brings forth purslane!—and mind you some one or other of these awful things is sure to happen to an anti-book-farmer when he least expects it! You may know such a chap by the way he rides his pockets! He has the settled air of a man who has been trying to lift himself by his boot-straps all his life. He is always at a railway station when a train arrives; always at the corner saloon when political spirit is dispensed. He rarely goes to the post office, for he rarely gets any mail. He is glad enough, however, to get the aid of a book-farmer's intelligence when in trouble.

It seems to us almost insulting to our readers to urge the importance and advantages to each farmer and his family of a well-selected professional library. But the character of many questions we are asked to answer (and we are always glad to do so) leads us to infer that many of our readers have not yet learned to appreciate the utility of books of reference on the different specialities in husbandry, or do not feel able to furnish themselves with the same. It is a good deal like a man attempting to weed a garden with a pitchfork—this attempt to pursue a modern system of farming and compete in production without the recorded experiences, experiments and observations of those who have devoted themselves to these farm specialities and without the scientific aid which may be found in books upon the management of domestic animals. In our own experience the recorded knowledge in a single book, costing but $1.50, has saved us $50 more than once. Too poor to buy agricultural books! They are as important adjuncts to the farm as tools! They are tools! They should be a part of the farm equipment—just as certainly as a plow or a harrow. Very many men would make money by selling a portion of their farms and spending the money thus secured for agricultural books and taking time to study them. Such men would waste far less money foolishly upon swindling "novelty" pedlers, and less time listening to the long yarns of quacks, pretenders and venders of nostrums for the cure of animal diseases, or for making butter come without churning, or making it without milk, or for impossible fruits, or impossible-to-be acclimated plants, &c., &c.—*Rural New Yorker.*

The Approaching Short-horn Sale Season.

We have already received numerous letters from breeders in various sections of the country concerning sales, and from present indications the movement during the coming season promises to be an active one. The enquiry for choice breeding animals appears to be a general one, and the prices which have been realized in recent private transactions indicate little or no abatement in prices. The intelligent farmers of the country are appreciating more and more the advantages which a general improvement in farm stock promises, and the demand for animals of good breeding is far in excess of the supply. And considering the vast expanse of our country, the quantity of stock which it maintains, and the small portion so far improved, it does not seem at all unreasonable to believe that the demand for animals whose blood is capable of making an improvement, will increase with far greater rapidity than the capacities of breeders to supply it can be enlarged. There certainly need be no holding back upon the part of any one for fear that the demand for improved stock will soon diminish, or that the supplies will soon approximate so nearly to the demand that sales at remunerative prices will become difficult or impossible. So far from there being occasion for any such apprehension as this, everything indicates that the demand for improved stock has just commenced, and that the great mass of farmers are only just beginning to realize the advantage of having it upon their farms. There never was a time before in the history of the country when improved stock was attracting so much attention, or when the influences for bringing it to the favorable notice of general farmers were so efficient, and those who know, as do our readers, that the preference for improved stock is not a mere fancy or passion founded upon whim and sustained by caprice, but, on the contrary, is the result of a substantial and tangible advantage over the common stock—an advantage within the reach of any farmer—need have no fear that they will ever again see the day when improved stock will be a drug in the market. The demand for it is a healthy and legitimate one, based upon merit, and upon a popular conviction that this stock is superior to the other, and will be sufficient to absorb everything which the regular breeders of the country can supply.—*National Live Stock Journal.*

RULES FOR POOR FARMING.—One of the roads to poor farming is well travelled but not generally acknowledged—invest all your capital in land and go in debt for more. Hire money at a heavy interest to run the farm; have very little faith in farming, and always be ready to sell out; buy the cheapest and poorest kind of stock and farming machinery; feed poor grain and hay to your stock, and you will have less repairs to make on your rickety fences and farm machinery, as fine horses and fat stock make sad havoc with the old waggon, plough, cart, and fences. Use the oil of hickory whenever your oxen need strength; it is cheaper than high feeding, and keeps the hair lively, and pounds out the grubs. Never waste time by setting out fruit or shade trees, as leaves rotting around a place makes it unhealthy. Sell the best calves, lambs, and shotes to the butchers, as they will bring a little more, and the thin and poor ones will do well enough to keep.—*Cor. Country Gentleman.*

GOOD SHORT-HORN SALES.—Mr. John Miller, "Thistle Ha'," Brougham, recently sold his fine imported cows, *Lady Juliet*, and *Lady Oxford*, to Mr. Benjamin Summers, Woodstock, Conn., at $2,000 each; and Mr. George Miller, Markham, his cow, *Lady Bell of Oxford*, to Mr. F. G. Goss, Hanover, Ont., at $700.

Report of Provincial Farm Commission.

To the Hon. Provincial Secretary.

Sir,

The undersigned Commissioners appointed by His Excellency the Lieut.-Gov. of Ontario in Council to "inquire and report with reference to the Government Farm near the Town of Guelph, and especially in regard to all matters proper to be considered in order with a due regard to economy, to adapt the said Farm and the management and control thereof, to the purposes of a model and experimental Farm, and in such manner as may conduce to the greatest possible benefit of the agricultural interests of the Province," have the honor to report that they have given the important matters entrusted to them their most careful attention, and have agreed unanimously to the following Report.

The Commissioners, in all their deliberations, have endeavoured to keep steadily in view that the great object sought to be attained by the establishment of this Institution is the advancement of practical Agriculture in the Province. They have sought to keep before them the existing position of this great industrial interest in Canada, and to ascertain in what manner the Guelph Farm can best be made conducive to the extension among us of a higher and more profitable system of husbandry. They have had careful regard to the character and results of the Agricultural Colleges established in other countries—and while anticipating the enlargement of the scope of the School and the elevation of its scientific curriculum, from year to year, under the guidance of experience, they have endeavoured to avoid the error, of sacrificing the practical to the theoretical, into which so many similar Institutions have unhappily fallen, and to place its operations (at the outset at any rate), on a strictly practical basis.

The Commissioners, it will be observed, have recommended that the knowledge necessary for admission to the School shall be at first merely that which, under our School Law, every boy must possess in passing from a Common School into a High School of the Province; and that by giving each Township Council in Ontario in turn the nomination of a competent pupil for admission, a wide spread interest in the success of the School is sought to be quickly created.

The agricultural interest greatly surpasses all the other industrial interests of Ontario in magnitude and importance. Its successful prosecution gives life and tone to all classes of business; and a bad crop, here as elsewhere, entails stagnant markets and monetary stringency. By no other way could the prosperity of our country be so vastly and rapidly increased, as by the general adoption of an improved system of farming. It has been estimated that the cash difference in value between a good crop and a bad crop in Canada exceeds fifty millions of dollars per annum,—but this sum falls far short of the enhanced cash gains which could be annually realized from thorough drainage, improved tillage, skillful manuring, and the general improvement of our Herds and Flocks.

The undersigned entertain the strong conviction that the Guelph School of Agriculture, if efficiently conducted, may be made eminently conducive to the promotion of these most desirable ends—and they thoroughly believe that the amount of public money necessary to its proper establishment will be abundantly and quickly repaid by the stimulus given to this chief industry of our land.

The Commissioners have deemed it most convenient to submit their conclusions in the form of separate propositions, as follows:—

1. That the name of the Institution should be "The Ontario School of Agriculture and Experimental Farm."

2. That the objects of the Institution should be: *First*, To give a thorough mastery of the practice and theory of Husbandry to young men of the Province engaged in Agricultural and Horticultural pursuits, or intending to engage in such. And, *Second*, To conduct experiments tending to the solution of questions of material interest to the Agriculturists of the Province, and publish the results from time to time.

3. That a carefully prepared Design of the Farm and Establishments, as they ought to be when the Institution is in full operation, should be prepared with all speed by one or two competent parties, in conjunction with the Principal That this design should provide for buildings of a plain and substantial character for all the purposes of the Institution, and make ample allowance for their easy enlargement from time to time as required.

4. That the existing Buildings on the farm should be utilized for present purposes; but in the event of their being found unsuitable for the efficient and economical prosecution of the daily work of the farm, they should gradually be replaced by others constructed on the principles set forth herein, and forming part of the systematic plan herein recommended.

5. That the Farm should be separated into five distinct departments, namely,

(1.) The Field Department.
(2.) The Horticultural Department.
(3.) The Live Stock Department.
(4.) The Poultry, Bird and Bee Department, and,
(5.) The Mechanical Department—including Carpenter, Blacksmith, Waggon, Harness and Paint Shops.

6. That the plan of the Farm should provide for a clear separation between these departments of farm-work; and that in locating each department due regard should be had in the site selected to the special suitability of the soil, convenience of access, and the compactness and tasteful appearance of the establishment as a whole.

7. That all the Buildings on the farm should be model buildings, so far as their adaptability to the purposes for which they are constructed is concerned; and that, while due regard should be shown to the demands of artistic taste in the design and site of each erection, yet the chief aim ought to be to have all the buildings in simplicity of style, completeness of arrangement, solidity of construction, drainage, ventilation and economy of labour, models worthy of imitation by the farmers of the Province, and attainable at a cost within their reach.

8. That the laying out of the fields, the system of drainage, the construction of internal roads and bridges, the planting of shade and ornamental trees, the growing of hedges, the erection of fences and bridges, and all other permanent improvements on the farm, should be carried out on a gradually developed system, and in such a manner as to exhibit and test the comparative values of the most approved modes of executing these several works, and to test the cost and convenience and durability of the different new appliances from time to time recommended for adoption on the Farms of the Province.

9. That the permanent principal building on the farm should be the Boarding-house for the pupils. It should be erected in the plain, substantial style suitable for the purpose to which it is to be applied. It should be three stories in height, with ceilings not less than eleven feet high, and warmed throughout by steam, or heated air from a furnace, supplied throughout with gas, and thoroughly ventilated on the most approved plan. It should be 240 feet long by 30 feet wide. The ground-floor should be devoted to the necessary class-rooms, dining-room, sitting-rooms, store-rooms, and the private apartments of the Rector. The other two stories should have no permanent division walls, but along the sides of each story should run ranges of sleeping-rooms for the pupils 10x12 feet each, and formed by wooden partitions, seven feet high, with a passage of eight feet wide running the entire length of the building between the ranges. That there should be a water cistern constructed in an elevated part of the building, large enough to furnish a constant and sufficient supply of fresh water for the establishment, and to give security against damage by fire; That in each sleeping-room there should be two single beds, and not more than two pupils.

10. That there should be a building attached to the said Boarding-house, and having one passage connecting it therewith, for the Kitchen, Washing-house, Laundry, Cellars, Store-closets, and other appurtenances of the House-keeper's department. That it should also contain a private sitting-room and bed-room for the house-keeper, and bed-rooms for her assistants. And that in this building the furnace for heating the main edifice should be utilized for the purposes of cooking, washing and heating, if found practicable and economical.

11. That there should also be a building attached to the main edifice, containing a sufficient supply of baths for the use of the pupils, and, if possible, a swimming-bath. That water-closets should also be erected in this building, and a room where each of the pupils should clean his work-shoes in the morning, and on returning from work, exchange them for house-shoes before proceeding to the sitting-rooms.

12. That there should be erected on convenient sites upon the farm, separate residences for the Principal, the Horticultural Director and the Live Stock Director; with suitable accommodation in each for a family, and outhouses and gardens attached. That the public approach to these residences should, if possible, be distinct from the approaches to the farm buildings, with which they should only be connected by a private passage.

13. That in the Horticultural Department,—if we select it to give a specimen of details—provision should be made as follows:

(*a*) That there should be a vegetable garden in which should be grown a full assortment of vegetables, and in which the qualities of different varieties may be tested as occasion arises, and their excellencies or deficiencies determined.

(*b*) That there should be a fruit garden in which a full assortment of small fruits should be grown and new varieties may be tested.

(*c*) That there should be a vineyard of hardy grapes, wherein various methods of training and pruning may be exemplified, varieties tested, and their value ascertained.

(*d*) That there should be an orchard in which a large variety of apple, pear, plum, and cherry trees should be grown, that the scholars may be made familiar with the appearance and quality of the several sorts, their peculiar habits of growth, their adaptation to this climate and proper modes of culture, and that new varieties may be tested.

(*e*) That there should be a nursery in which the propagation of fruit and ornamental trees and plants, and the operations of grafting, budding, layering, pruning, &c., may be taught and performed.

(*f*) That there should be a lawn, in which the principles of rural adornment can be exemplified in the grouping of trees and shrubs, the laying out of walks and planting of flowers.

(*g*) That there should be greenhouses in which the art of cultivating plants under glass may be acquired, including the methods adapted to the propagation and growth of each variety, and in which the principles of erecting, heating, and ventilating plant houses may be exemplified and taught.

(*h*) That there should be vineries in which exotic grapes are grown under glass, and the methods of cultivation with or without artificial

heat illustrated, and the pruning and training of the vines experimentally taught, and new varieties tested.

(*i*) That there should be orchard houses in which the cultivation of such fruit trees as can be grown under glass in this climate, may be practically taught, both growing in tubs and planted in borders.

(*j*) That there should be a flower garden in which students may be made familiar with the appearance, habits and culture of hardy, herbaceous and other decorative plants, and grounds appropriated for the bedding out of suitable exotics, and instruction given in the art of arranging and combining colors so as to make grounds attractive and pleasing.

(*k*) That there should be an arboretum in which are grouped, as near each other as practicable, all the species and varieties belonging to each genus of deciduous trees which will grow in this climate, and the students made familiar by comparison and contrast with the particular characteristics of each, and instructed in the economical uses to which each is specially adapted.

(*l*) That there should be a pinetum grouped in a similar manner, by means of which students may be made familiar with the habits and appearance of the evergreens adapted to this climate, and instructed in the economic uses to which they are severally suited.

(*m*) That while the ultimate accomplishment of all these important objects should be kept constantly in view, they should be the result of a progressive development, unfolded as the growth and needs of the school may determine.

14. That until the Farm has been systematically laid out and brought into order for the special purposes to which it is to be applied, and until the necessary buildings and offices have been erected—it is inexpedient to settle definitely the curriculum of instruction to be given, or the conditions on which pupils shall be admitted when the Institution is in full operation.

15. That for some time to come the work of the Farm must be mainly confined to the preparation of the fields and buildings for the systematic instruction of the pupils; that the knowledge that might be acquired from these preparatory operations would be most valuable to the pupils; that the labour of the pupils ought therefore to be employed so far as practicable in these preparatory operations; and that it is expedient to provide at present merely for the conduct of the Institution during this preparatory term, and utilize the practical experience obtained from it in settling hereafter the permanent organization and educational curriculum.

16. That during the said Preparatory Term the chief aim should be to teach the pupils how to perform farm-work in the best and most profitable manner—coupled with such an amount of scientific knowledge as will enable them clearly to comprehend the results sought to be obtained from each operation, and the scientific facts and principles on which it is based; and that the light obtained during this preparatory Term should determine whether or not the amount of scientific instruction should be increased, and, if so, in what manner it can most usefully be imparted.

17. That during the said preparatory Term, the number of pupils should be limited to the strength that can be profitably employed in the operations of the Farm—commencing with twenty or thirty, and increasing from month to month as the progress of the work may be found to demand.

18. That the ordinary branches of English education necessary to the acquisition and proper use of the industrial instruction to be imparted in the Agricultural School should be found in the National Schools of the Province, and not given as part of the prescribed course in the Agricultural School.

19. That no pupil should be admitted until he has attained the full age of 15 years.

20. That before admission to the School as a Pupil, each candidate should produce the following certificates of qualification:—

(1.) As to his knowledge in the ordinary branches of English Education—the qualifying standard of which should at first be simply sufficient to enable the pupil to master the instruction given at the School of Agriculture.

(2.) As to his age, parentage, and place of birth.

(3.) As to his physical health and strength.

(4.) As to his moral conduct.

(5.) As to the assent of his parents or guardians to his application for admission.

(6.) As to his intention to follow Agriculture or Horticulture as his permanent occupation.

21. That the standard of English Education necessary for admission as a Pupil ought to be as follows:—

Arithmetic: As far as Simple Proportion inclusive.

English Grammar and *Composition:* Analysis and parsing of easy sentences; writing a familiar letter; *Reading, Spelling* and *Dictation.*

Outlines of *English* and *Canadian History.*

Outlines of *General Geography* and *Geography of the Dominion of Canada.*

These subjects are the same as prescribed for pupils passing from the Common Schools of the Province and desiring to enter our High Schools. The examinations are held in January and August of each year. It is recommended, therefore, that intending applicants for admission to the School of Agriculture should pass the same examination, at the same times and places,—of which public notice is always given by the Public School Inspectors; and that successful candidates should receive from the Local Boards of Examiners certificates of qualification. All pupils who have been regularly admitted to the High Schools, and all who hold Teacher's certificates; and all Graduates and Under-Graduates of all Universities in the British empire, should be deemed to possess the literary qualification for admission.

22. That during the said Preparatory term, the mode of admitting Pupils to the advantages of the School of Agriculture should be by the nomination of one duly qualified candidate by each Township Council of Ontario. That the Reeve of each Township should forthwith have sent him for the information of his Council, a statement of the intended character of the School, the personal qualifications required before admission from each Pupil, and the advantages accruing to the successful Candidates; that he should be requested to have nominated by his Township Council without delay, one duly qualified candidate for admission to the Institution and to transmit the same to the Provincial Secretary on or before the day of , 1874. That as soon thereafter as possible, all the names of duly nominated and qualified Candidates should be drawn by lot and placed on a list in the order in which they were drawn; and according to their position on that list the vacancies in the School should from time to time be supplied during the ensuing year.

23. That all the details of the daily work of the farm should be performed by the pupils—subject to the occasional employment of such skilled assistance as may from time to time be absolutely required.

24. That the average *Maximum* of daily labor during the year, should not exceed seven hours.

25. That during the Preparatory Term, each Pupil should enter into an agreement (with the assent of his parents or guardians) of service for one year, subject to the rules of the School, agreeing to give his whole time to the work and studies of the Institution; that such agreements should run from the first day of the month following that in which the pupil commences study; and that the terminations of the engagements made should be so distributed over the year as to prevent the efficiency of the farm-staff being at any time seriously affected.

26. That the Pupils should provide their own Clothing and Books.

27. That during the said Preparatory Term, each Pupil should receive instruction as herein defined, Lodging, Board, Washing and $50 in money at the end of the year, in the event of his completing it to the satisfaction of the Principal and his colleagues on the Executive Board.

28. That each pupil should have a number assigned to him on his entrance; that a set of Tools bearing his special number should be given to him for his exclusive use during his residence in the school; and that he should be held responsible for their proper care and condition.

29. That each Pupil should keep a diary of his work on the farm during the year, with a *resumé* of the instruction given daily by the officials.

30. That Prayers and a portion of Scripture should be read every morning and evening, and a blessing asked before every meal; that it should be obligatory on all the inmates of the Boarding-house and attachment to be regularly present at morning and evening prayers, with the exception of such as on the ground of conscientious scruples formally object to do so; that on Sunday all the pupils should attend service at least once in the church of the denomination with which they may have been severally connected; and that the practice of gambling, and the use of intoxicating liquors should be strictly prohibited at the Instituton.

31. That each Pupil should be entitled to absence from the Institution for not more than three weeks during the year, at such period of the year as the Executive Board may determine.

32. That Prizes for Proficiency and Good Conduct should be annually awarded; and that Certificates of Proficiency and Good Conduct should be given to the deserving Pupils on leaving the School.

GOVERNING COUNCIL.

33. That there should be an Honorary Council consisting of eight Members appointed by Government, and the Commissioner of Agriculture as President, who should make By-laws for the internal organization and government of the Institution; and that such By-laws should be approved by Order in Council of the Ontario Government, before going into operation.

34. That the members of the Honorary Council should meet at Guelph, on the first Wednesday of January, April, July, and October in each year; that the term of their appointment should be two years, four retiring each year, the four to retire at the end of the first year to be determined by lot; That there should be an Advisary Committee of the said Council, composed of three Members, whose advice the Principal of the School should seek when matters of adequate importance render it expedient; and that the Members of the said Council should have defrayed, from the funds of the Institution, their actual travelling and hotel expenses in attending meetings.

STAFF OF OFFICIALS.

35. That the Chief Official of the Institution should be styled The Principal; that he should be thoroughly versed in the practice and science of Agriculture, and should possess large personal experience in practical husbandry. It should be his duty to form the plan of operations for the coming year—after consultation with the Directors of the several departments. His special charge should be the Field Department, which he should personally direct, being systematically with the pupils in the field, instructing them in their work. He should also devote a daily average of two hours during the year in the class-room to the oral instruction of the pupils in practical Husbandry, and in such branches of Agricultural Science, and to such an extent of these branches, as may enable them to understand the scientific facts and principles on which each field operation is based. It should also be his duty to exercise surveillance over all the operations and transactions of the Institution, and to see that the Officials, Pupils and Employees properly discharge their several duties.

36. That the Official second in rank in the Institution should be styled The Horticultural Director; That he should be a gentleman of the highest ability in his profession, practically and scientifically, and possessing a special aptitude for communicating knowledge to his pupils and interesting them in their work; That he in like manner with the Chief of the Field Department, should plan and see executed the whole Horticultural operations of the year, and be personally in the grounds instructing his pupils; and that he should also devote an average of two hours daily

during the year, to the oral instruction of the pupils in the class-room

37. That over the Live Stock Department an Official, third in rank, having the highest ability in his profession, should be placed with the title of The Live Stock Director. He should thoroughly understand the breeding, raising and fattening of Cattle, Sheep and Hogs, and the breeding, raising and breaking of horses. He should have a good knowledge of the different races of Horses, Cattle, Sheep and Hogs—of their good and bad points, according to the established standards of the show grounds and cattle markets—of their comparative values in the home and foreign markets—and of the recorded Pedigree systems of England, Canada and the United States. He in like manner with the other chief officers should be the active director and overseer of the whole practical operations of his department, and give two hours daily to the oral instruction of the pupils in such scientific studies as may be necessary to make them thoroughly versed in the scientific facts and principles which enter into the management of the Domestic Animals of the Farm.

38. That the Principal, the Horticultural Director, and the Live Stock Director, should form an Executive Board, meeting at such stated times, daily or weekly as they may determine, to consult together for the promotion of the interests of the Institution, and to determine from time to time such questions of discipline and management as may arise.

39. That the Principal and Directors should each be entitled to a vacation of six weeks every year; and that the period designated for each should be so arranged between them that only one should at any time be absent from the Farm.

40. That it is of the highest importance that all the pupils should receive from one thoroughly competent Veterinary Surgeon, or more, such practical instruction for the treatment of the ordinary diseases and injuries to the domestic animals of the Farm as may enable them to apply the proper remedies—at least until a Veterinary can be called in; That it might be advantageous were the Veterinary College at Toronto incorporated as a department of the School of Agriculture—or at least that the funds of both institutions might be united to secure a thoroughly efficient staff available for both.

41. That experience has established the great advantage possessed by the Cheese and Butter Factory systems in comparison with the old plan of the isolated Farm Dairy; that the Factories already established in the Province have been of incalculable benefit to the farming interest; and that the extension of the system should be encouraged by every legitimate means. That for many reasons it would for some time to come be inexpedient to establish a factory on the Farm but that very great advantage would be derived from the establishment in the neighbourhood, by private parties, of a Cheese Factory and a Butter Factory on the most approved principles—in which accurate experiments could be made for public guidance and the best modes of operation taught to the pupils of the Agricultural school, in consideration of a specified fee for each pupil, or an annual bonus for the school.

42. That there should be an Officer, known as The Rector, whose duty should be to take charge of the Boarding House and its inmates when they are not engaged in their field or class-room duties. It should be his duty to preside at meals, to keep the books and act as Treasurer of the Institution; and under the instructions of the Principal to make purchases and sales, and conduct the necessary correspondence. He should officiate at morning and evening prayers, and must necessarily be a man of reliable character, business capacity, kindly yet firm disposition, and unmarried.

43. That over the Poultry, Bird and Bee department, there should be placed a foreman, thoroughly skilled in all that concerns the propagation, management and preparation for the show ground and market of the special objects of his care and their products. It should be his duty to take personal charge of the whole department, and with the aid of the pupils to perform all the daily work connected with it. He should be competent to direct the attention of the pupils to the properties, habits, and comparative merits of the different breeds and to the most approved modes of housing, feeding and breeding them.

44. That over each of the three principal Departments of the Farm should be placed a thoroughly efficient foreman capable, under the instruction of his Director of executing the whole of the practical work of his department, and of giving instruction to the pupils in their daily operations.

45. That in the Mechanical department there should be a foreman carpenter and a foreman blacksmith, who, with the assistance of the pupils, should do all the necessary repairs, and as much as possible of the general carpenter-work, waggon-work and blacksmith-work of the Institution. They should be first-class mechanics, able and willing to give the pupils such instruction as may enable them to handle common tools, and do the ordinary repairing work of a farm.

46. That the Foremen of all the departments should at first be single men, who should reside on the farm and receive their Lodging, Board and Washing as part compensation for their services; but that the permanent plan of the Farm should provide for the future erection of cottages for them on sites convenient for their special work and for protection of the property.

47. That there should be a House-keeper, of large and matured experience in the management of young persons—who would take active control of the domestic affairs of the Boarding-house, and personally interest herself in the health and comfort of the Pupils. She should be a widow or single person without encumbrance, and give her whole time to her duties. She should employ and change from time to time the domestic assistants required to aid her—who should be women of matured experience in the care of young persons.

48. That every effort should be put forth to obtain yearly from the Farm a satisfactory financial return; that the aim should be to produce from it the best classes of animals, seeds, plants, fruits, vegetables, &c.; and that the surplus products should be disposed of, as far as possible, at periodical sales by auction.

All which is respectfully submitted.

DAVID CHRISTIE,
Chairman.
GEORGE BROWN.
JAMES SKEAD.
JOHN McCAUL.
GEORGE BUCKLAND.
JAMES A. McLELLAN.
ANDREW WILSON.
D. W. BEADLE.

Toronto, 31st January, 1874.

Guelph Poultry Show.

This poultry show held on the 3rd, 4th and 5th, of the present month, was we are glad to learn in every way a decided success, the entries numbering 337, and included among them the birds of several fanciers from a distance. The exhibition was held in the large drill shed, and the coops arranged in a somewhat novel, but it would seem ingenious way. They presented the appearance of a hollow square. The fronts of the coops facing outwards, the interior being filled up with packing cases, a very excellent way of disposing for the time of unsightly obstructions, as the conductors of all poultry shows is but too well aware. The exhibition was held under the auspices of a few poultry fanciers in and about Guelph, who we are glad to learn purpose forming themselves into a society, in which we trust they will be successful. As to the success of the show we cannot do better than quote from the Guelph *Mercury*, to which we are indebted for the foregoing information.

The show as a whole is superb, and some of the birds are really matchless. In the classes of Brahmas, Cochins, Games, Dorkings, Houdans, and Crevecœurs, most of the birds are not only beautiful individual specimens, but are pure in breed. Silver Pencilled Hamburgs as a class are rather inferior, as there does not appear to be a perfectly pure specimen in the show. The display altogether shows great enterprize on the part of the fowl-fanciers, as all the most recent breeds are represented by good specimens. Any one wishing to make a selection for his own poultry yard has an excellent opportunity here, as he sees the fowls at a time when he can form an opinion of their capabilites for standing the Canadian winter. Several very fine birds have evidently too much comb and wattle to be profitably propagated or used in Canada. The collection of geese and turkeys is a beautiful one, and it is doubtful whether finer specimens could be found on this continent. The ducks are of course nearly all Aylesburys and Rouens, and are also admirable specimens, some of them nearly as big as geese. Perhaps the finest feature of the show is the large breeds of fowls. Dorkings hold their well established pre-eminence as a thoroughly useful fowl, and we are glad to see so large a number of them exhibited. It shows that "fancy" is combined with a sufficient idea of "utility." Black Spanish are numerous and fine. The appearance of the wattles and comb show, however, the difficulty of rearing them in this country. Pigeons and song birds are well represented, and there are some very pretty specimens amongst them.

Prize List.

Judges—Jas. Goldie, Guelph; W. H. Lingwood, Fergus; S. Butterfield.

Class 1.—Dorkings.

White, John Bogue, $5; 2nd do $3; 3rd J. W. Moyes, $1. Silver Grey, John Bogue, $5; 2nd do, $3; 3rd J. W. Buck, $1. Dark, 2nd F. W. Stone, $3.

Class 2.—Dorking Chickens.

White, 2nd J. Aldouse, $3. Silver Grey, J. Bogue, $5; 2nd F. W. Stone, $3; 3rd do, $1. Dark, Daniel Allen, $5; 2nd H. M. Thomas, $3; 3rd F. W. Stone, $1.

Class 3.—Cochins.

Buff, H. M. Thomas, $5. White, P. Breiding, $5; 2nd F. Sturdy, $3; 3rd H. M. Thomas. $1. Partridge, P. Breiding, $5; 2nd F. Sturdy, $3; 3rd P. Breiding, $1.

Class 4.—Cochin Chickens.

Buff, D. Allan, $5; 2nd H. M. Thomas, $3; 3rd Lot Dean, $1. White P Breiding, $5; 2nd J. W. Buck, $3; 3rd do, $1. Partridge, H. M. Thomas; 2nd do, $3; 3rd F. Sturdy, $1.

Class 5.—Brahma.

Dark, J. Fullarton, $5; 2nd H. M. Thomas, $3; 3rd do, $1. Light, George Davidson, $5; 2nd J. W. Buck, $3; 3rd E. Morris, $1.

Class 6.—Brahma Chickens.

Dark, H. M. Thomas, $5; 2nd F. Sturdy, $3; 3rd D. Allan, $1. Light, J. W. Buck, $5; 2nd P. Breiding, $3; 3rd F. Sturdy, $1.

Class 7.—Black Spanish.

D. McR. Kay, $5; 2nd F. Sturdy, $3; 3rd do, $1.

Class 8.—Black Spanish Chickens

D. McR. Kay, $5; 2nd D. Allan, $3; 3rd F. Sturdy, $1.

Class 9.—Leghorn.

White, 2nd H. M. Thomas, $3; 3rd Jas. Anderson $1; Brown, none.

Class 10.—Leghorn Chickens.

White, J. W. Moyes, $5; 2nd, L. Lean, $3; 3rd, J. Fullarton, $1. Brown, 2nd, J. W. Moyes, $3.

Class 11.—Game.

Black Breasted Red, D. Allan, $5; 2nd H. M Thomas, $3; 3rd F. Sturdy, $1. Brown do., 3rd Joseph Craig, $1. Duckwing, D. Allan, $5. Pyle, none.

Class 12.—Game Chickens.

Black Breasted Red, D. Allan, $5; 2nd James Parker, $3; 3rd H. M. Thomas, $1. Brown do., 2nd R. Balkwill, $3; 3rd J. Craig, $1. Duckwing, 2nd D. Allan. $3; 3rd John Bogue, $1. Pyle, none.

Class 13.—Polands.

White Crested Black, J. W. Burke, $5. Golden Spangled, D. Allan, 2nd H. M. Thomas. Silver Spangled, H. M. Thomas, $5; 2nd John Bogue, $3; 3rd D. Aldhouse. White, H. M. Thomas, $5.

Class 14.—Poland Chickens.

White Crested Black, H. M. Thomas, $5. Golden Spangled, John Bogue, $5; 2nd P. Breiding, $3; 3rd J. Aldhouse, $1. Silver Spangled, 2nd John Bogue, $3; 3rd H. M. Thomas, $1. White. 3rd J. Aldhouse, $1.

Class 15.—Hamburghs.

Golden Spangled, F. Sturdy, $5; 2nd L. R. Day. $3; 3rd F. Sturdy. Silver Spangled, John Bogue, $5; 2nd H M. Thomas, $3, 3rd James Feassant Golden Pencilled, D. McR. Kay, $5; 2nd Joseph Dobbie, $3 Silver Pencilled, 2nd John Bogue, $3; 3rd H. M. Thomas. Black, D. McR. Kay.

Class 16.—Hamburg Chickens.

Golden Spangled F. Sturdy, $5; 2nd Samuel Shaw, $3; 3rd H M Thomas, $1. Silver Spangled, H. M Thomas, $5, 2nd Jas Feassant, $3; 3rd do., $1 Golden Pencilled, Joseph Dobbie, $5; 2nd do, $3 3rd D. McR. Kay, $1. Silver Pencilled. 2nd Joseph Dobbie, $3. Black, 2nd D. McR. kay, $3; 3rd Jos Fullerton, $1.

Class 17 —Houdans.

John Bogue, $5; 2nd H. M. Thomas, $3; 3rd Lot Dean, $1.

Class 18 —Houdan Chickens.

Lot Dean, $5; 2nd John Bogue, $3; 3rd H. M Thomas, $1.

Class 19.—Crevecœur.

1st H. M. Thomas, $5.

Class 20.—Crevecœur Chickens.

J. Aldhouse, $5; 2nd H. M. Thomas, $3.

Class 21.—Bantams.

Golden Sebright, H. M. Thomas; 2nd J. W. Bussell; 3rd D. Allan. Silver Sebright, 3rd R. Balkwill. Black Breasted Red Game, D. Allan; 2nd H M. Thomas; 3rd D. Allan. Duckwing Game, D. Allan; 2nd D. McR. Kay; 3rd do.

Class 22.—Turkeys.

Bronze, J. W. Bussell, $5; 2nd do., $3; 3rd Jos. Anderson, $1. Black, Chas. Head.

Class 23.—Geese.

Toulouse, F. Sturdy, $5. Bremen, F W. Stone $5; 2nd F. S. Henry, $3; 3rd H M. Thomas, $1 China, (small) T. S Henry $5; 2nd do., $3; 3rd do., $1. Wild, T. S. Henry, $5.

Class 24.—Ducks.

Aylesbury, John Bogue, $5, 2nd F. Sturdy, $3; 3rd do., $1. Rowen, F. Sturdy, $5; 2nd D. Allan, $3; 3rd F. Sturdy, $1.

Class 25.—Rabbits.

Angora, 3rd H. M Thomas, $1.

Class 26 —Pigeons.

A Goebel, Mitchell, $3; 2nd H. B. B. Alley, London, $2. Blue Pied Pouters, A. Goebel, $3; 2nd H B. B. Alley, $2. Almond Tumblers, Joseph McGrath Toronto. Any other variety Tumblers, A. Goebel $3; 2nd H B. B. Alley, $2. White Fantails, T. S Henry, Oshawa, $3; 2nd Westley Henry, $2. Blue, Fantails, A. Goebel, $3. Jacobins, A. Goebel, $3 2nd H B. B. Alley, $2. Carriers, black, H. B. B Alley, $3; 2nd A. Goebel, $2. Carriers, any other color, A. Goebel, $3; 2nd do., $2.

Class 28.—Song Birds.

Cock Canary, G. Bookless, Guelph, $2; 2nd W Burgess, Guelph, $1. Hen Canary, A. Suddeby, $2. 2nd do., $1. Goldfinch, English, a Suddeby, Guelph, $2; 2nd J. B. Allan, Malton, $1.

Class 29.—Guinea Fowl.

J. W. Bussell, Hornby, $3.

In class 30, "any other Ornamental Gallinaceous Fowls not provided for elsewhere, and deemed worthy." a first prize was given to D. Allan for a black African bantam cock. Second prizes were given to P. Breiding for Black Cochins; Geo. Balkwill, for Quails; Geo. Balkwill, for American Grosbeak; John Fry, for White Top-knot Ducks; P H. Gibbs, large White Geese; T S. Henry, Oshawa Buff Geese; John Bogue, London, colored geese Samuel Barber, Guelph, received a third prize for a pair of geese. Mr. Daniel Allan's bantam pyle game-cock was highly commended.

Extras.

First prizes were given to Mr. A. Goebel for the following birds:—Black barb pigeons, chequered pouters, ice pigeons, yellow trumpeters, blue-winged turbits, black fantails, Calcutta fantails; and his yellow fantails were highly commended.

A SHROPSHIRE RAM was rented for the season in England for $1,000, gold.

JUST as we go to press the unwelcome news arrives that the noted $40,600 cow gave birth prematurely to a dead calf, and that the cow also is dead.—*Live Stock Journal.*

NEW SHEEP SHEARS.—A new patent on sheep shears has been taken out in England, which embraces the comb principle. The lower blade is toothed like a comb, which gathers up the wool closely, without loss, and also avoids danger of cutting the skin. It answers for either long or short wool.

Breeder and Grazier.

Does Ergot Produce Abortion in Cows?

The explanation of the cause of abortion in cows, which is so increasingly prevalent in dairies, and which is so mysterious, may possibly be somewhat assisted by the following facts, related by a correspondent of the London *Mark Lane Express*: "Observing the letter of 'H. C. C.' in your impression of the 5th, on the subject of ergot, I beg to call your attention to the circumstance of its having been very largely developed in this district during the past and preceding summers, and to its baneful effects in causing abortion in cow stock. I endeavor to maintain my pastures in the highest possible state of cultivation, having to keep a large herd of Jersey cattle, besides yielding a quantity of hay for winter use My cows went on all well until July, when they commenced slipping their calves in the most extraordinary manner, without any perceptible cause to account for the mischief, the whole place being kept in a state of the greatest cleanliness, and no unusual excitement existing among the herd. By the 31st of October, ten or twelve mishaps had taken place when, almost in despair, I applied to my medical attendant, who at once suggested ergot as the probable cause of all the loss and annoyance. Knowing that my fields had been sown over with 'renovating grass seeds,' supplied by one of the principal firms, and *Lolium perenne*, or perennial rye-grass, entered largely into their mixtures, I at once sallied out into the fields, and the very first stem of rye-grass I found had no less than seventy ergot on it, while almost every one was affected, some to a greater, others to a less extent. The parasite is of a black color, and resembles the well-known ergot of rye, only much smaller in size, and I have no doubt but that its presence in such quantity was the cause of the great loss I sustained both in 1872 and 1873, the mischief commencing about the same period in each year.

In Morton's *Cyclopædia of Agriculture* the following passage occurs under the head of 'Abortion'. 'The ergot of rye as a medical agent has a very exciting effect on the uterus, and as rye-grass as well as grain is subject to the same disease, it has, with much reason, been considered that the unusual presence of this poisonous matter in the grasses was foremost among the causes of abortion. The idea is in keeping with the fact that a wet season is conducive to ergot.' In Wheeler's little pamphlet on grasses there is a caution to their friends on this same point, but which, with the notice by Morton, I had not seen until too late.

I would suggest that the most parasite growth exercising, as it does, so powerful an effect, may in some measure account for the trouble one frequently experiences, especially during the late summer months, in getting one's cows to stand. From the first July to the 31st October, not more than one in twelve of my cows became in calf; since that date with only one or two exceptions, all have become pregnant."

What I know of Berkshires.

The Americans consume more pounds of pork per head than the people of any other country, and, therefore, it stands them in hand to produce this staple article of diet at the lowest rate. I do not wish to be considered ultra in my predilections in favor of any breed, for there are several breeds entitled to cultivation; but I think the tendency toward moderate sized hogs, now fast growing into favor, even with pork-packers, entitles Berkshires to special consideration. I have raised them for several years, and find them, so far as I am able to compare with others, the most economical pork-producing breed. The Poland-China has many good points, and when hogs of 500 lbs. weight were sought after, they were entitled to stand at the head with the corn-producing West, for eighteen months to two years would put them beyond this weight, and it is not so easy to bring the Berkshires up to it. The Berkshire, by long breeding pure, has a remarkable prepotency, and produces its like with so great certainty, that any number of them may be produced, with the same food and care, differing little in shape or weight at a given age. A pig that will give the best return for the food consumed during the first ten months of its life, is just the one wanted. I will not undertake to say that the Berkshire is that pig; but I can say that it is the best one I have tried. There is no practical difficulty in reaching a weight of 300 lbs. at ten months, and that is the most profitable weight for market.

The following is a part of the characteristics of this breed, given at the Swine Breeders' convention: "face short, fine and well dished, broad between the eyes, ears generally erect, but sometimes inclining forward with advancing age, small, thin, soft, and showing veins; jowl, full; neck short and thick; shoulders, short from neck, to middling deep from back down; back, broad and straight, or a very little arched. Ribs—long ribs, well sprung, giving rotundity of body; short ribs, good length, giving breadth and levelness of loins; hips, good length from point of hip to rump; hams, thick, round and deep, holding their thickness well back and down to the hock; tail, fine and small, set on high up; legs, short and fine, but straight and very strong, with hoofs erect, legs set wide apart; size, medium; length, medium; bone, fine and compact; offal, very light."

This is a terse description of this concentrated machinery for working up food into pork. When the Berkshire is expanded into a 300 pound hog, at ten months, it is the perfection of swinish beauty. What could you add to improve its proportions or increase the value of its make-up? The food all goes to lay on valuable flesh. From comparative tests I can freely say that 100 pounds of Berkshire pork can be made from the same food that is required to grow 70 pounds upon the scrubs generally fed.—*Cor. Live Stock Journal.*

Sunlight in the Stable.

At this season of the year when our animals must be kept in the barn the greater part of the time, how important it becomes that they should have their quarters made as pleasant and as comfortable as possible. Not only should the boarding of the stables be tight enough to keep out the snow and cold winds, but the light of the sun should be brought in as much as is practicable. Most barns are too dark for the health of the animals or convenience of attendants. Many could be pointed out that have not a single pane of glass about the whole building.

While doing the "chores," the doors must be left open to let in the light, and during cold driving snow storms, the barn gets ventilated a great deal more than is necessary. It would make a wonderful change in the inside appearance of thousands of old barns, to just put in a few sashes on the south side and let in the warm sunshine. We do not believe that cattle can long be perfectly healthy when constantly tied in dark stables. The sunlight was made to live in, and the more of it we can get inside of our buildings, the better will it be for ourselves and animals. After getting in the light you will find it necessary to use the broom. The cobwebs and dust didn't show before, and if you will spread a coat of whitewash over all the inside walls of the cattle rooms, you will find the light will seem to stay after it once gets in. A light barn promotes habits of neatness, while a dark one tends to carlessness and slovenly ways.

For the sake of affording ventilation in warm weather, it would be better to have the windows put in so they could slide, but if they are put in solid it will be just as well as far as light is concerned.

A cheap way of setting a sash in the wall of a single boarding, is to cut out a hole about one inch smaller than the sash on all sides except the bottom. Use an inch board four inches wide for a stool on which the sash will rest in the inside of the boarding. Then screw the sash tight to the boards all round. A strip nailed on the stool at the bottom of the window, makes all tight. We also like to see good sized sashes set in the barn doors so the feeding and other work on the barn floor can be done without opening the doors to the storm without.

There has been a great improvement in this respect within a few years. Many of the modern stables are pleasanter and more comfortable than were the dwelling houses of half a century ago. It is nothing very uncommon now to see barns in our villages with blinds on all the windows, and we are not sure but it would pay to use them, especially on stable windows in hot weather. We can't have too much sunshine in winter, but in summer it may sometimes be too much of a good thing.

Study the comfort of the animals. It will pay to do so. Now is a good time to put in the windows and whitewash the stables. You have no idea what a change it will make in the general appearance of the premises. It will seem strange that you had not done it before.—*N. E. Farmer.*

THE CHROMO BUSINESS is degenerating. A Pennsylvania farmer now offers one to every person who buys a load of potatoes from him.

THE DUKE OF SUTHERLAND owns a three-year-old ox which weighs 2,500 pounds, and measures in girth nine feet one inch. It was recently on exhibition in Inverness, Scotland, and attracted much attention.

Feeding Cows.

The South Hadley Farmers' Club (Mass) discussed this question. Mr. Thorpe thinks his pastures not quite up to the average, and sows an acre or more of corn for fodder. Thinks it necessary to feed a milk dairy better than a butter dairy. For winter feed, give the cows in the morning: first, hay, then one-third of a bushel of roots each (*commencing the winter on common turnips*), then all the corn-fodder they will eat. Prefers to water twice a day. At night feeds meadow hay and four quarts grain as cut feed (one quart meal and the rest bran). The normal quantity of food for an average cow is about twenty-five pounds of hay per day, or its equivalent. All you can feed in excess of this, *without* waste, is profit.

Mr. Graves feeds one peck of meal or one-half bushel of bran to each cow; he gets a large flow of milk, and his stock is always in good condition; considers that roots save hay, and never has sick cows in winter when plenty of roots are fed. Does not think that a moderate quantity of turnips or cabbages, fed regularly, will taint or flavor the milk, but these may impart their flavor to the cream and butter, especially if turnip tops or cabbage leaves are fed that have been left in piles and allowed to heat. Don't think that a cow, when accustomed to it, will eat too much bran. Corn meal is more dangerous to feed in large quantities than bran. Mixes meal and bran together and feeds with hay, wet. The more kinds of grain you can mix together, the better, as a variety prevents cloying and keeps up a good appetite. Wm. H. Sill would feed buckwheat with corn meal if he could get it; the buckwheat for milk, and the meal to keep the cows in good order. Thinks buckwheat will *produce more milk than any other* grain, but if fed singly in large quantities, will run down and wear out a cow too soon. His winter feed is: first hay, then cut feed, then water at 9 a m, hay only at noon; waters again in the afternoon, and feeds grain late in the afternoon. Considers Hungarian grass as good as English hay. If cabbages and turnips are fed, would feed them immediately after milking.

A M Burt feeds roots through the winter, and prefers potatoes to turnips. Feeds first roots (about a peck) then cut feed with two quarts meal and two quarts rye bran; then all the hay the cows will eat, then water. At noon feeds hay only. At 4 p m waters; then feeds two quarts meal and bran; then all the rowen the cows will eat. Changes their feed every two or three weeks, believing that cows thrive best upon an occasional change of feed. Milch cows should be watered in a sheltered place in winter. Mr. Burt's cows produce, upon an average, ten quarts of milk each, per day, netting about $100 each per year, with the milk at four cents per quart in summer and five in winter, and not including the milk and butter for household uses.

Newton Smith has steamed feed for two or three winters. Coarse hay, swale grass, and stalks will pay for steaming, but if one has plenty of English hay and rowen, steaming is not necessary. Feeds plenty of wheat bran (one peck and two quarts meal) Feeds grain through the summer, and also sowed corn and cabbage leaves in the fall. Feeds a bushel of cabbage leaves to each cow, and *does not think* they will taint the milk unless they have been heated, or the cows are allowed to eat the cabbage stumps. Waters twice a day, and gives a handful of salt to each cow once a week. Thinks the quantity of milk is increased by steaming the feed. Sells his own milk at retail for seven cents per quart in summer and eight cents in winter, to the amount of $200 per year for each cow, on an average. Had tried potatoes (one peck per day) but thought the milk too thick and starchy in consequence. It pays better to give cows all they want than to let them go hungry.

Elliot Montague has fed his cows with long hay and bran every night since July. Has found by experience that cows produce more milk when fed with cob and rye meal than with only corn meal. Dwight Judd believes that corn, oats, rye and barley, mixed, produce most milk.

S. W. Miller gives the cow warm water. The more a cow drinks the more milk will she produce. The greatest increase of milk has been while feeding one peck of wheat bran with coarse hay, then rowen and clover.—*Live Stock Journal.*

A Southdown Farm in England.

"The excellence of English farm stock is owing, more than to anything else, to the perfect adaption of locality and soil, and the raising of the most suitable fodder crops. This is strikingly apparent in a description of a *southdown farm*, or a *farm* devoted to southdowns, belonging to Mr. Wm. Ridgen, of Hope, near Brighton—one of the most successful breeders of this favourite class of sheep. This estate of 700 acres has been managed by the present occupant for 33 years; it is supplied with gas, and with water from an adjacent reservoir. There are 20 cows kept for milk, which are fed in stalls the year round. Large crops of grain and straw are grown for sale and for feeding to fattening bullocks in stalls. The flock, which numbers 300 ewes, is, however, the main feature of the farm. For them large quantities of roots, cabbages, kohl-rabi, scarlet clover, rape, and other green crops are grown, so that there is a constant succession of fresh feed. During the day the sheep are folded upon these crops and at night are penned upon stubble fields. The situation of the farm is such that green crops are always to be had. It is a gently sloping chalk 'downs' or smooth expanse bordering upon the southern shore of England. Thus the sheep have a very equable climate with mild sea breezes and pastures ever fresh and green. *No ewe over four years old* is retained, and great care is exercised in choosing rams and selecting ewes for breeding. There are no fences upon the farm, and a shepherd with his dog accompanies the flock at all times. The male lambs are castrated when ten days old, fifty of the best being reserved for rams for breeding. This flock is renowned for its excellence, and rams from it are 'let' for a yearly sum of $150. The secret of this excellence is, however, acknowledged to be simply 'a *frequent change of food*,' and this conclusion is the most notable part of the whole story."—*New York Tribune.*

A Thorough-bred Short-Horn for the Shambles.

David Bedinger, of Walton, Ky., sends to the *National Live-Stock Journal* the report of the sale of a short-horn bullock sold by him the past fall. He was four years old, weighed 2,220 lbs., and was sold during the pame at 8½ cents per pound (delivered at Covington, or $188 70. During the fair season Mr. Bedinger was offered 11 cents per pound for him, but asked 12 cents, which he would undoubtedly have obtained had not the financial troubles come on. And here is a point which general farmers who devote a portion of their farms to grazing, can note with profit, and that is, that scrub steers do not weight 2,220 lbs. at four years old, nor even at any age, and that improved cattle not only make better weights, but they are in demand at better prices. If any one has a desire to raise beef to supply the prisons of the country, scrubs will do; but those who raise beef to supply this demand should not complain if they receive prison prices. Those who raise beef for *gentlemen* to eat, can realize prices upon which a *gentleman* can live. It is true of the beef market as it is of all others, that common and inferior products are in excess of the demand, and bring *low* prices, while there is always a demand at large prices for a superior article, and those who labor to produce a superior article are generally the ones who thrive.

EXCELLENT PRICES.—Highland Chief, a pure bred Clydesdale, coming two years old, and imported by Wm Roiph, Scarboro, was sold on Tuesday last, at public auction, to Hector McDonald, of Blandford, County of Oxford, for $1,800. Mr. McDonald is now the owner of one of the best young horses in the Province. Highland Chief has an excellent pedigree, and is a fine specimen of a Clydesdale. The four year old Clydesdale stallion, Dumfriesshire Jock, weighing 1950 lbs., and imported this year by David Ressor, jr, was sold last week to Frank Elliot, Township of Reach, for $3,000. Dumfriesshire Jock is a large horse with good action, he has heavy bone, deep and broad chest, and altogether is a well proportioned animal. He is a thorough-bred Clydesdale, and is certainly a splendid specimen of his class. Mr Elliot deserves the thanks of his neighbors for introducing in that section of Canada so valuable a horse.

IMPROVED STOCK HAS THE ADVANTAGE.—Under the head of "Items and Inquiries," in the December number of the *Journal*, Messrs. B. Lucas & Sons, of Piqua, Ohio, state that they have a calf that gained 52 pounds in 12 days. Mitchell County can beat that. I have three bull calves, dropped respectively Jan. 1st and 10th, and Feb. 22nd, 1872, from common heifers, 21, 22 and 23 months old, sired by the thoroughbred bull *Duke of Glen Flora* 9844. They had only the dam's milk and grass *until Aug. 30th*, when they were taken up, weighed, and fed two parts [each, three times per day, of ground feed, composed of five-sixths bran and shorts, and one-sixth oil-cake meal; cut mangold wurzel beets, with all the hay they would eat. Sept. 23rd, weighed again, the first and third had gained 115 pounds each, and the second 93 pounds. Have repeatedly tried common calves with as good care and feed; never have succeeded in making them gain more than one-third as fast as grade Short-horns.—FITCH B. STACY, *Stacyville, Ind.*

AYR WINTER HORSE FAIR.—This fair was held at the usual stand, near Ayr Cattle Market, recently. The prices for good draught animals, of which there was a large show, were, in some cases, almost fabulous. One four-year old mare brought the very large sum of $1,000, and a great number of others were disposed of at prices ranging from $500 to $800. A trotting mare was sold for $500, and a good number of harness horses were disposed of at equally high prices. The principal dealers were in attendance, and there was also a large turn-out of farmers. It was pronounced to be the dearest market for horses ever held at Ayr.—*N. B. Agriculturist.*

SOILING COWS.—N. E., Dayton, Ohio, writing to the *Live Stock Journal* says:—It will certainly pay to judiciously soil cows on a small farm. There is no other way by which so much milk can be produced on a given number of acres. When you have put your land in proper condition, a cow can be kept upon one half acre for summer and one acre for winter. Even better than this has been done. Starting this late, prepare the ground well, and sow one-eighth of an acre of oats thickly for each cow as early as you can; two or three weeks after sow the same amount of land to oats for later cutting. Then prepare the ground and sow one-fourth acre of corn for each cow. *This will probably leave a surplus for winter feeding.*

LOOSENED HORN.—I have a yearling bull that knocked one of his horns loose a few days ago. The shell remains on, but is loose, and somewhat out of place. At the time of the accident, the bull lost a great deal of blood. Will the shell again become firm? or if it comes off, will another grow and become as long as the old horn? The animal is very valuable, and I an anxious to know what is best to be done in order to save the shell, or promote the growth of another. C. M. L. [The horn will probably grow fast again, if not loosened by fighting or rubbing. If it comes off, it will not be replaced, but the stub or pith remaining will harden somewhat, only growing to the same size as the corresponding portion of the other horn. The only thing that can be done is to care for the animal that the horn will have a chance to become solid again.]—*Country Gentleman.*

EFFECTS OF COLD IN FATTENING.—A producer of pork in Muskingum County, Ohio, who has made an experiment with hogs, with a view to ascertain how far cold retards the rate of fattening, reports the following results: Carefully weighing the hogs fed, and the corn fed to them, and estimating pork at four cents per pound, he found that what he fed out *during the first week in October* returned (in pork) 80c. per bushel; the first week in November, 60 cents; the third week 40; the fourth week in November and the month of December, 25; the first half of January, 5; the last half, 0. In the October week of experiment the weather was pleasant and warm. It gradually grew colder till the latter part of November, from which time it remained about stationary till the 1st of January, after which it ran down to zero, and below in the latter part of the month. The hogs were well sheltered in a good pen with plank floor.—*Department Report.*

SOILING.—J. R. B. in the *Practical Farmer*, gives an account of what he produced from two and a-half acres of land put in first-rate order, and used for soiling and root growing. The land was used from Aug. 1, 1871, to the end of the season of 1873. The corn-fodder, green rye, (for Autumn use), and white mustard, furnished food for twenty-five cows for two months, and for thirty-five cows and two oxen for one month. In addition to this he raised 840 bushels of round turnips, the same quantity af beets, and 250 bushels of rutabagas. When dairymen learn to produce such an amount of fodder from an acre, a fifty-acre farm will carry as many cows as 200 acres under the wasteful system of three to four acres to pasture a cow. If dairymen would study the best method, supporting more cows on their small farms, instead of buying more land to be spoiled by half tillage, they would make an improvement in the right direction.

Miscellaneous.

Do Farmers Read Enough.

Is it not true that many farmers read very little, hardly enough of the news of the day to keep posted in regard to the current events of our own country, to say nothing of the foreign news? Further, do they read that which pertains to their business? trying to improve the mind upon the great study of agriculture. This class do not seem to realize how much education and improvement of the mind have to do with farming. They count strong hands and muscle as the only requisites for successful farming. They depend altogether too much upon the weather and circumstances, and too little on skilful, intelligent management for success in their business. We know there are some who will say that this is not true—that many ignorant, unread men are quite as successful in tilling the soil as those who read. But we think we can point out some of the reasons to show that the same men could do better if more brain labor were applied in connection with the labor of the muscles. In the first place, mind is regarded as the measure of the man in every other profession; and all other business succeeds in proportion to the active knowledge and intelligence the man has who manages it. Why should it not be so with the farmer? Much as we value bone and muscle, brains are the most important. The body is but the tool, the mind is the hand that works it. It is to education and progress in the arts and sciences that all our enlightened and civilized countries owe their greatness. The barbarous have strength of body, and in many countries superior soil and climate to our own. Why has this country become great and prosperous except for its superior culture of the mind? Intelligence is strength, and whatever power or influence a people possess, must be developed through the intelligence of that people.

But, to apply it more practically to the business of farming, we would say that in no industrial pursuit in the improvement of the mind—education is the thing which pertains to the profession—more important. The desired culture and information can be gained mainly through reading. New and valuable ideas gained by reading and study will be as so much capital to him. A reader is generally a man of knowledge and culture, and he acts in proportion to his knowledge. We should read more agricultural books and papers, and if we can by reading ascertain a better way of doing any kind of farm-work, or make any advances whatever in theory or practice that would benefit us, we should be prepared at once to adopt it. If we have a farm of poor soil to be brought up to a certain standard, let us study the science of agriculture and the means best and most economically adapted to improve it as rapidly as possible. If we are the fortunate possessors of a soil rich in all the elements of fertility, it should be our constant aim and study to keep it so, and see that no injudicious system is pursued in its cultivation, and that its natural fertility remains unimpaired, but constantly improved. This applies also to every department of the business, whether it be in the cultivation of crops or the raising of stock.

A farmers library, books and papers, which are in the reach of everybody, will develop and improve the mind, so that farming will be done on correct business principles.—*New-England Homestead.*

To Make Farming a Success.

A great many people have an idea that farming is a branch of industry that requires but little judgment or experience; that all that is necessary is to plough and sow, reap and mow. That is, if a man does not know enough to get a living any other way, why let him farm it. This is a mistake. I think a man, to make a successful farmer, should like it, or prefer it to all other occupations, and then he will take pride in it, and everything connected with it. His ploughing will be done in season, and well done. He will remove the stones from his plough field; he will see that there is no cut and covering; if the plough runs out he will have the team back up and try again, and when it is time for sowing he will be ready. His ground will be thoroughly fitted; he will not be in in such haste as to half do it, and then get half a crop. He will seed it to grass once in two or three years at least. He will want a good field roller to roll in his grain, for it saves time in harvest, and he will get better crops; for if it is a dry season it will stand brought better; the roller will pulverize all the lumps, and the grain will come up evener. The careful farmer will watch over his farm as close as a careful merchant will over his stock of goods and fixtures. He will see that his stock of horses, cattle, sheep, &c., are properly cared for, that they are not allowed to get old and worthless before he sells them. If he is following one particular branch of industry, and he should not be quite as successful in it for one season, as in some other branch, he will not be continually changing. For instance, if he is dairying, and the products should be low, while wool should bring a good price, he should not sell his dairy stock at a sacrifice and pay an exorbitant price for sheep. Or if his soil is best adapted to raising grain, and it should not bring a very remunerative price for one season, he should not has hastily change for something else. But he should make up his mind what particular branch of agriculture is best adapted to his soil and climate, and follow it. The competent farmer is the man who keeps himself informed as well as possible, as to the amount produced each year in his line of production; also the amount of receipts and shipments, and then govern his sales accordingly.

I often think that parents are to blame for so many failures in farming. They are too apt to desire their sons to follow the same avocation as their fathers before them. I think to try and make a farmer of a boy when he dislikes it, is a mistake. If a young man likes farming he will enter into it with zeal and determination to succeed, and nine times out of ten, he will. His farm and crops will show it. His buildings and surroundings will look as if he calculated to stay on the farm. He will set out fruit, shrubbery and shade-trees; in fact, all things that tend to make a home attractive and comfortable. While on the other hand if he dislikes it you will see that everything drags. Like the migratory birds he will soon give up farming and seek a home elsewhere.—*Cor. N. Y. Times.*

How to Judge of Marl.

The chief differences in marls are two. Some have a great deal more clay than others. This can be seen at once, and a marl that abounds in clay so as to have a dull, bluish color, and cake down when wet, is not worth carting great distances. On sandy lands, where clay is needed, such marls are more useful. But on a clayey soil the farmer should seek a marl that has a deep but green color, that grows mellow by exposure to the weather, and when a little of it is rubbed in the palm of the hand, gives a pale green paint. Some marls have a good deal, as much as ten or twelve pounds in a hundred, of lime; these generally are deficient in phosphorus. As lime can be had at from ten to fifteen cents a bushel, it will not pay to buy marl for the lime it contains. The constituents which make it valuable as a commercial manure are potash and phosphorus, and practically it is found that marls are judged and prized by the quantity of phosphoric acid they are found to contain.—*Ex.*

Farmers as Missionaries.

It is not so much the question nowadays how fancy farming may be bettered, as is the important undertaking to raise the condition of common farming. Nineteen-twentieths of the husbandry of this country is on a very little higher plane than was the farming of thirty years ago. And it is to those, the great majority of producers, that the teachings of advanced practical farmers should be given. As a class it is to be feared they do not read agricultural papers. And it must be confessed we here meet with a difficulty in the beginning of our undertaking. But, here and there, they have neighbors who do read the papers, and can silently teach by example. Men are imitative, and some are ambitious. When they have facilities they will be apt to strive for better farming, especially when convinced it is for their profit. Those who do not see the use of underdraining may still do something to remove the surface water. If their cattle are suffered to wander unsheltered in winter something practical for bettering their condition might be suggested to their owners; or, better yet, examples of humanity can be set them. If the improvident farmer cannot be induced to shelter them otherwise, perhaps he might be made to see the folly of neglecting stock over winter by demonstrating to him that all his feed and labor are wasted; that the same cattle are no heavier in the spring, nor will they sell for more than five or six months before. If he be careless about saving and applying manure, perhaps he may be brought to see the benefits derived from clovering. And though it be unsightly and unsavory, and we cannot persuade him to remove the hog-pen from the roadside, he might be induced to make his pigs invaluable agents in working over sods and composts, thus adding to the heap and deodorizing the pen. There are a thousand ways in which an intelligent, go-ahead farmer may encourage his thriftless neighbor to make improvements, and so add materially to the common good.

It is not to be expected of any missionary in this direction that he can educate or reform the taste of the wayside farmer, whose yearly struggle it is to make his bread and pay taxes. Still a word might cause him to plant a few trees about the dwelling by way of ornament, and he might be encouraged to keep neater fence-rows. It might not be exactly proper, or delicate, to scold him for not getting a pump or building a wood-house. His father before him always had a wood-pile in front of the door, and the traditional well-sweep hung over the well. But a little lay-preaching in the cause of pity for dumb animals may work a revolution in their behalf—and they are numbered by millions—that would add to the material wealth of the country, and might well form a text for farmers' granges.—*J. B. A., in New York Times.*

The Receipts of my Farm.

A correspondent of the *Iowa Homestead* gives the following statement of the product of his farm in Iowa. He writes: I see in your notes from correspondence that a Pennsylvania man claims that twenty acres of land, at $300 per acre, in Lancaster County, Penn., is more profitable than a section of Western land. I think he is badly mistaken. My farm is new, and, of course, not fully subdued; at least my crop was not as good as it would have been if the sod was better rotted. I had 160 acres in crops last year. Now, I will compare receipts with W. J. K., or any one else, if they show better than I can. I expect to learn how to beat him the coming season on land that, ready to crop, cost less than $13 per acre. If I can show as good or better I think it proves that an acre in Iowa is worth as much as in Lancaster, or any other county land, for a man to use, while it cost less than one-tenth his lowest-priced land.

My receipts for 1873 were as follows:

9 acres barley, 240 bushe's, $1	$240 00
20 acres Winter wheat, 287 bushe's, $1 05	301 55
35 acres Spring wheat, 600 bushels, threshed, 87c	522 00
8 acres Spring wheat, 250 bushels, hard wheat, 81c	178 00
8 acres flax, estimated amount, 100 bushels, worth $1 50	150 00
12 acres potatoes, sold $325, and at least $100 on hand	425 00
4 acres turnips and onions, sold $75 worth	75 00
20 acres hedge plants, 9 acres, sold $1,100, as many on hand as sold, at least	2,200 00
Cattle sold	668 00
Hogs sold	800 00

Balance of ground in corn, which was fed to cattle and hogs, or will be stock on hand worth as much as a year ago, except cattle. I bought $200 worth of corn. My stock of hogs is worth nearly or quite what cattle and hogs were last year, to commence on; but, to give a fair comparison, I will deduct $275 from total amount for decrease of stock, $200 for corn purchased. The balance was raised by three hands, with a few dollars' worth extra help until harvest. It cost more to harvest than to raise the crop. In addition to raising crop, we broke about forty acres new prairie, which should be put down as an increase of capital against decrease of stock.

Rest from Brain Work.

The Watchman and Reflector makes the following sensible remarks upon an important subject:

"Study out of school hours is once more receiving a little attention, but not half so much as it deserves. We protest against the practice as injurious to both the mind and the body of the pupil. The hours assigned for school-room duties are as many as health or propriety require; a child needs all the rest of the twenty-four for physical and mental health and growth. We do not want to see or hear of precocious children; we want no such hot-house pressure; and if, perchance, some boy or girl has an inclination to overwork, let it be checked instead of encouraged. This precocity seldom reaches mature life; the lamp burns brightly for a while, but soon exhausts itself. If parents and teachers would be content with a reasonable progress in studies—would think that a child's body is of some importance as well as the mind; would realize the power in the old quotation—*Sana mens in sana corpore*: 'a sound mind in a sound body'—they would be wise in their generation. There is a false pride in this matter that works only mischief."—*Farmer.*

A GRAND POULTRY EXHIBITION, under the auspices of the Central Illinois Poultry Association, was held recently at Jacksonville. The entries were very large, and the display of poultry is stated as surpassing anything of the kind, probably, ever held in Illinois.

Production of Cheese.—In 1853, 1,000,000 lbs. of cheese were exported from here to England, and in 1870, 7,000,000 lbs. The State of New York alone has now nearly 1,000 cheese manufactories, which use the milk of more than 250,000 cows, making therefrom 80,000,000 lbs. of cheese, which is 1,000 lbs. of cheese for every three cows. The cheese production of the United States is now over 100,000,000 lbs., of which 60,000,000 lbs. are exported. England exports scarcely 3,000,000 pounds, while little Holland, which used to be the principal cheese-producing country in the world, exports at present 25,000,000 lbs. This latter fact suggests the extent which the cheese production of the United States may reach in the course of years, and the wealth which its exportation will bring back—as the Hollanders used to boast that their cheese production alone was more valuable and reliable than a gold mine, very few of which surpassed the Dutch cheese in the profits realized.—*Am. Ex.*

Advertisements.

CONTENTS OF THIS NUMBER.

THE CANADA FARMER is printed and published by the Globe Printing Company, at 26 & 28 Adelaide Street East, Toronto, Canada, on the 1st and 15th of each month. Price one dollar and fifty cents per annum, *free of postage.*