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Agriculture.

The following extracts admirably illustrate the agreement of the results of sound practical experience with those which are deduced from scientific principles :—

EXTRACTS FROM "THE GENERAL MANAGEMENT OF A FARM IN LOWER CANADA,"—BY A SCOTTISH FARMER.

1. REQUISITES OF A GOOD SYSTEM.

1st. It ought to be economical, and not require more capital than the actual system, or rather than the present absence of system, requires. It is undoubtedly of great advantage to apply capital to the land, but this advantage is in general beyond the reach of our farmers, as their means are not sufficient.

2d. It ought to restore fertility to the soil, and maintain it by the products of the land itself. Manures got from other quarters than the farm itself, are always expensive, and, at a distance from town, are often not to be had at all.

3d. It ought to be simple and of easy application.

4th. Finally, it ought to have experience clearly in its favour.

2. EXPERIENCE OF THE WRITER.

I came to the country thirty years ago, and burdened with a debt of £40; I leased a worn-out farm in Lower Canada of eighty-four acres, in the midst of a French population, and at an annual rent of £45. Well, in the space of 21 years, I have paid my original debt, and saved enough to enable me to purchase in the same neighbourhood a much better farm than the one I rented. The owner of the farm which I bought, was going on every year from bad to worse, until he was forced to sell it, whilst I, the tenant of a less productive farm, and paying rent all the while, was enabled to buy him out, as just said. What was the reason of this anomaly? The Canadian was stronger than I was, had equally good health, and had no rent to pay. The reason was, that he had no system; he let his land become exhausted, and full of weeds; he let his stock starve; he wasted his manure, the gold of the farmer, and let every thing go to ruin for want of method; but when I had got hold of this same farm, and had applied the system which I am about to describe, the whole was brought gradually, field by field, into good condition by the end of six years; since then, the condition of the land has steadily improved, and that by resources drawn wholly from within itself.

The system to which I allude, is known to all good farmers every where as the basis of all improvement, I mean that of

3. A ROTATION OF CROPS.

There are two sorts of reasons in favour of this plan of rotation of crops.

1st. Because different plants draw from the soil different sorts of food, so that one plant will grow freely in a soil which is worn-out as regards another.

2d. Because the crops being various, the occasional failure of one is not so much felt, seeing that the others furnish subsistence sufficiently without it.

The cultivation of a fair proportion of all the varieties of crops which Providence permits to grow readily, ought therefore to be considered as the best means of averting a famine, and what intelligent farmer, with the case of Canada and Ireland before him, would wish to be limited to the culture of wheat and potatoes only?

4. PLAN OF THE ROTATION.

Divide the arable portion of the farm, whatever may be its size, into six parts, as equal as possible, with a direct communication from the barn-yard to each field, and from one field to the other, so that the cattle may pass from one to the other when required. This division into six fields, may require on most farms new fencing, and it will be proper, beforehand, to see how this can be done with the least possible expence. I shall now suppose the farm prepared to receive the application of this system, and that is the one which I have found the best for even the poorest settler.

1st. Root crops, such as potatoes, carrots, beets, parsnips, &c., [turnips and also flax], and in cases were the land is not sufficiently open for a crop of this kind, the field must be left in fallow.
2d. Crop of Wheat or Barley.
3d. Crop of Hay.
4th. Pasture.
5th. Pasture.
6th. Crop of Oats or Peas.

In beginning the application of this system, that field of the series which is in best condition for a Root crop, should be called Field	A
The best for Wheat or Barley	B
That which is actually in Hay	C
The Pasture fields	D & E
That which is best for Oats or Peas	F

Each field for the first year ought to be appropriated to the crops above-mentioned, and after the fashion now in use among the farmers of Lower Canada, except in the case of field A. By this plan, they will at all events still get as much from their five fields as they get at present.

The culture of field A and of crop No. 1 come up together for the first year, and ought to be the object of special attention, as this is, in fact, the key to the whole system; for the good culture of this field has for its object, and ought to have for its effect, not only a good crop the first year, but also to improve the land for the five other years of this Rotation of Crops.

In the following year, the cultivation of the different crops will be according to the following order :

Crop No.	2	in the field	A
Do.	" 3	"	B
Do.	" 4	"	C
Do.	" 5	"	D
Do.	" 6	"	E
Do.	" 1	"	F

and so on, changing each year until the seventh, when crop No. 1 will come back to field A, and the whole will then be in a good state of fertility, and free from weeds. The above system has been proved to be capable of restoring old land, and extirpating all weeds.*

In order to render the thing more simple and easy of comprehension, I shall suppose myself to be again obliged to take a worn-out farm in the autumn of 1849. The first thing that I should do, would be to divide the land into six fields, by proper fences, to prevent the cattle going from one field to the other; and I would then take for field A, that which appeared best for green crops or root crops; I would collect all the manure which I could find in or out of the barns, I would take up the flooring of the cow-house, stable and piggery, and I would take out as much of the soil underneath as I could get, for this soil is the essence of manure, one load of it being as good as four or five loads of common dung. The portion thus removed, ought to be replaced by an equal quantity or ordinary soil, or, if it be possible, of bog earth, which might be removed when necessary afterwards.

The dung and other manure thus collected, should be placed on the field A in September, or the beginning of October, spread with care (as far as it will go), and covered up in a shallow furrow. Manure aids the decomposition of straw and the weeds of the soil, and frees it from these plants, which thus help to keep the soluble portion of the manure, until its juices become necessary for the crops of the succeeding years. The greater variety there is in the crops of this field, the better it will be, provided the soil is suitable for them. Thus, this field ought, as nearly as possible, to look like a kitchen garden.

5. CROP 1st.—ROOT OR GREEN CROP.

Under the actual circumstances of the country, I would particularly call the attention of farmers to the cultivation of the Carrot as being one well adapted to our soil and climate.

The land which has been manured in the fall, as above described, ought to be ploughed at least twice in the spring, the one furrow across the other, and both as deep as possible. It is then to be barrowed until it is properly mellow. You then make with the plough two furrows, distant two feet, or two feet three inches from each other, taking care to raise the soil as much as possible between each. You pass the roller over this ploughed portion, and then with the corner of a hoe, make a small furrow or drill along the top of the rows: drop the seed into this furrow, and pass the roller over it again: this last operation will cover the seed sufficiently.

If you can get a seed-sower, that will simplify matters considerably. A roller is essential in the culture of root crops which spring from small seeds, but it can be readily got by all farmers. A log of twenty inches diameter, and five feet long, with a pole fixed at each end, will do the business admirably.

Carrot seeds (and you may say the same of the other seeds), ought to be soaked in rain, or soft water, until they are about to sprout, and then rolled in quick-lime until the grains are dry enough not to stick to each other. When there is no lime, wood ashes will do as well. A pound of seed, if it be good (and you ought always to try it before sowing), will be sufficient for one acre of land. By the above plan, the young plant will come up before the weeds, so that it will be easy to distinguish the rows of carrots before the weeds appear: this renders the cleaning comparatively easy, since it may be done (except the thinning) by means of a cultivator. This cultivator is an instrument which every settler ought to have, and which, like those already mentioned, is extremely simple in its construction. It is made of three bars of wood joined in front, and separated behind, according to the width of the furrows which you wish to clean. This instrument, called the Horse-hoe or Drill-harrow, or Cultivator, is drawn by one horse, and has handles to it like a plough, only lighter. A man or a boy may guide it, so as not to touch the rows of Carrots or other crops, but only to raise the soil to a greater or less depth, at pleasure. As soon as the weeds appear, you draw this harrow between the rows, so as to bring the soil as close as possible to the young carrots, but without touching or covering them. This process will keep the plants sufficiently clean until the time for thinning them and leaving them four five or inches apart from one another; soon afterwards you may plough between the rows thus harrowed and raised. These operations do good to the plant, by permitting air and moisture to have access, and by facilitating evaporation. My plan for gathering the carrots in autumn, is to pass the plough along the right side of the plants as close as possible, without injuring them: this frees them on one side, and the stem is strong enough to allow us to haul up the roots by it afterwards.

This method of culture requires a good deal of labour, but the return is more than enough to recompense the farmer.

When we consider the large amount of nutritive matter contained in this root, and its general application to all the living things on a farm, its culture cannot be too strongly recommended, besides it is relished by all animals, especially by working horses, to whom it may be given instead of Oats.

I have dwelt particularly upon the culture of the Carrot, because the same method applies to the culture of all the root crops, which can be advantageously grown in this climate, such as Parsnips, Beets, Mangels and Turnips.

Parsnips will grow in a close soil, almost in clay, and do not require cellars since they will remain uninjured all winter in the ground. In this case you will have them in the spring, affording a new and succulent food, at a time when it is most necessary. Every animal will eat parsnips with relish, and cows fed upon them yield a very rich milk.

Beets and Mangels have the same value as a crop, and as food for milk cattle; but I do not consider them to be so good for fattening cattle.

[In spring, all the manure made during the past winter, should be carted to the field, placed in a heap, and twice turned. All bones should be gathered and broken up with a hammer, all coal and wood ashes, scrapings of sewers, the dung from the fowl house, and the contents of the privy, should be collected and made into a compost, with dry loam or bog earth.

The above manure may be used for that portion of the field devoted to cabbages, potatoes, and turnips. It should be put in the bottom of the drill on which the above are to be planted or sown.

When the ground is properly ploughed and harrowed, and a sufficient quantity of sound seed sown,—say, at least, four pounds to the acre,—the Turnip crop is as certain as any other.

The sowing of Turnip seed should be commenced early in June, and may be continued up to 20th July. If the fly takes the first sowing, a second will be likely to succeed.

The Turnips, when well up, and getting strong, should be thinned out to a foot apart, and the hoe and cultivator passed through them at least twice before they meet in the drills.]

If the land is too heavy for root crops, beans and green peas will suit for No. 1, taking care to sow them in drills, and to prepare the land as above described for root crops.

If it be thought absolutely necessary to summer-fallow,—that is, to plough without sowing,—which only happens when the soil is so hard and heavy that it cannot be pulverized in any other way, you ought not to spread the manure on the land in the preceding fall; but plough the land, and ridge and furrow it with as much care as for a crop. You need not touch it again before the month of June; when you must plough it again, and harrow it, so as to render it even, and destroy the roots of the weeds. You may then draw the furrows in a straight line, giving them a uniform breadth, and so as to facilitate drainage. About the middle of July, you must plough it again, and sow it with plenty of buckwheat. At the end of September, plough it again, having previously spread it with dung. In this case, the buckwheat is ploughed under with the manure, and serves greatly to increase the latter. The land thus prepared, ought to be sown with wheat in the ensuing spring, and you may add a little timothy and clover. A bushel of timothy will suffice for four or five acres, and three or four pounds of clover to each acre.

By following the method above described, you will have, in the year 1851, quadrupled, or more than quadrupled the fertility of the soil.

6. SUCCEEDING CROPS OF THE ROTATION.

I have now done all that I can for field A. I have weeded and manured it as well as I can; and after having taken the crop of roots, and the crop of wheat or barley, next year, I leave this field to rest until the other fields have been improved in the same way, and according to the method above described. When this shall have been effected,—that is to say, in the space of six years, or in the year 1856,—the worst will be over, and the battle may be considered as gained. The fields will then be in a clean and fertile condition, and their value will consequently be greatly increased. The Farm of 70 or 80 acres, which in 1849 only sustained three or four miserable cows, and perhaps no more than an equal number of sickly sheep, will be capable, in less than ten years, of furnishing an abundant subsistence for ten or twelve cattle, and other stock in the same proportion.

One of the great advantages of this system of rotation of crops is, that the pastures, which in summer furnish summer-feed for the stock, are in due proportion to the quantity of roots and hay destined to winter-feed them, and in due proportion to the straw which the grain-crops yield for their bedding. I will observe here, that farmers—except those who live near towns, where they can easily procure manures—ought never to sell a single load of their hay, straw, or roots; since the whole ought to be consumed on the farm, with the view of procuring a sufficiency of manure therefrom, whereby the fertility of the soil is to be sustained. But if the farmer is not to sell hay, or straw, or roots, what is he to sell? I answer, the third of the land being, under this system, appropriated to grain crops, he will always be able to sell a large part of them. The half of the farm being in hay and pasture, will allow it to produce a large quantity of butter, cheese, butchers' meat and wool; and to sell a considerable part of these, after having supplied the wants of the family. It may be said, that six years is a long time to wait for the renovation of the whole farm; but I will reply, that I know of no other means by which it may be done in less time, from its own resources; and it is worthy of observation, that the land is improving every year. The produce is larger, even for the first year, under this system than it is under the present method of culture; and, from year to year, the land is improving, field by field, and is producing more and more, so as to pay the farmer better than it does at present, and to recompense him doubly afterwards, when the whole shall have been improved under a system of rotation.

It may be objected, that two years of pasture is a long time of rest for the land; but you will observe, that the land does not remain unproductive during this period of repose. This plan not only contributes to re-establish the almost exhausted fertility of the soil (and it will be admitted, that this is the only one now practised by the Canadian *habitant*), but it is also the best means of furnishing the farmer with the first necessaries of life, and the articles which, so to speak, will most readily find an outlet in our markets,—such as beef, lard, mutton, butter, cheese, wool, and other products already named.

Manures are of the first importance to the farmer, and he must do everything in his power to increase their amount. The system here proposed, is calculated so as to increase the quantity of manure in proportion as the soil becomes improved. As already said, the farmer ought not to sell a particle of his hay or straw, because these are the principal materials for manure; and, consequently, it is infinitely worse to sell the manure itself. The manure, thus economized, will suffice each year for the field which is to receive the root crop (No. 1).

After the crop of oats (No. 6), the land is not yet exhausted, and might even yield another grain crop. It is better, however, to preserve this fertility, than to be obliged to bring back continually this degree of fertility.

In this short treatise, it is impossible for me to mention one hundredth part of the means which we have of increasing our stock of manure. I shall content myself with alluding to the rich deposits of bog-mould which we possess, and the limestone, which can be had every where. The very weeds, even, which are the curse of our fields, may be converted into good manure.

6. STOCK.

As for the sort of Stock which ought to be kept, I would advise a regular proportion of all the animals which prosper with us; because one sort may be fed on the food which another will not touch. For instance, sheep eat greedily and get fat upon French beans, which no other creature but man can use.

The Canadian breed of cattle is, perhaps, the best for the country, and the best to yield milk, butter, &c., provided care be taken to select the best bulls and cows to breed from. Too much care cannot be given to this point; and the calves must be supplied with good and abundant food. If it be desirable to cross the breed, so as to increase the quantity and quality of the milk, this can only be done with the Ayrshire breed,—seeing that the larger breeds do not do so well for the country, at least in the present condition of its pastures.

[By keeping a thorough-bred bull, and changing every three or four years, and rearing only the best heifers, the stock would gradually be brought up nearly approaching to the breed of the sire.]

A good Canadian cow will, in my opinion, give more milk for the same allowance of food, than any other breed which I know.

[The profits of the dairy depend almost entirely on the care taken of the cattle during winter. Cows warmly housed and well fed through the winter, and put on good pasture in summer, will yield much more than sufficient to pay for the difference of keep. In the Province of New-Brunswick, cows are generally fed on dry hay in winter, kept in cold stables, and are pastured in the woods, or on fields which have been impoverished by excessive cropping. The consequence is, that, as reported by the Farmers themselves to Professor Johnston, the average yield per cow, for the season, is only 89 lbs. Butter, or 140 lbs. Cheese. In Ayrshire, as reported by Mr. Colman, Commissioner from the United States, the yield is, per cow, 300 lbs. Butter, or 500 lbs. Cheese. To ensure a similar yield, the following treatment is requisite :

Select good, well-shaped, healthy cows. In winter, provide for them a warm stable on the South side of the barn. Water them in their stalls. Boil regularly for them a mixture composed of turnips, mangels, or carrots, with chaff or cut hay, and a small allowance of barley, oats, or linseed: of this, let them have two pail-fuls each, daily—and as much oat-straw or hay as they require. In summer, turn them into fields where they can have as much grass as they can consume. The cows should calve in April: the calves to get the milk for a month, and afterwards to be weaned off with skimmed milk and boiled linseed.]

The Leicester breed of Sheep is the best to give large and fat sheep; but it is not so advantageous as regards wool, which is perhaps the principal object for which sheep are kept. That breed which would possess a combination of the two qualities of fat meat and fine wool, and a vigorous constitution withal, would be the best for Lower Canada. To attain this object, you might cross the common sheep of the country, first with a Leicester ram, so as to get a large breed, and then mix the product of the first cross with a Cheviot ram, so as to get a finer wool,—or first with a Cheviot, and then with a Leicester ram. In this way, I have procured hardy sheep, any one of which will yield six or eight pounds of fine wool, and from twenty-two to twenty-five pounds of mutton per quarter. In breeding, the greatest care must be taken always to choose the finest rams, and to preserve the finest lambs; and on no pretext ought the finer individuals to be disposed of.

As the keeping of sheep is of the greatest importance, and but little known, I will add a few remarks,—which will be excused, since this has been the business of almost my whole life.

Sheep ought not to be allowed to run from field to field; as this gives them wandering habits, which injure them the whole summer through. When sheep are well fed and well treated, they will follow the person who has charge of them wherever he pleases; and if they are taken and enclosed in good pasture, they will give less trouble in looking after them than any other sort of stock. It is also of the greatest importance, to smear sheep about the middle of November: for which purpose, I have made use of the following mixture, which succeeded wonderfully well. The quantities here indicated, will suffice for twenty sheep :

Rosin,	4 lbs.
Common Oil,	3 pints.
Butter,	3 lbs.

The oil ought to be heated to the melting point of the rosin, and the butter then added, after the oil has ceased to boil, which is a point requiring attention. The whole ought to be stirred until they become thoroughly mixed; and should the composition prove to be too thick to be used, buttermilk or cream may be added, taking care to mix well. This ointment is to be smeared on the skin of the sheep in parallel lines, distant one inch from each other, and for the whole length of the creature. This application destroys vermin, invigorates the growth of the wool, and protects the animal against cold. This precaution is absolutely necessary, if we wish to secure a good flock of sheep.

Another thing of great importance is, never to shut up sheep in a close ill-ventilated place. It would be better to pen them up in some corner of the barn, rather than to treat them so. The sheep can naturally endure a considerable degree of cold, but it cannot do without fresh air; consequently the fold ought always to be well ventilated.

It is a very bad practice, to let the rams walk with the sheep in autumn; because that is the reason why the ewes drop their lambs too early in the spring. The ram (and a single one will be enough for five farmers,) ought to be kept apart from the 15th of September till the 22d November; and if at this latter period he be allowed to go to the sheep, the lambs will appear about the 17th of April, and the ewe will not have had time to get worn out with suckling before going out again to the pasture.

The best breed of pigs for the country, is that called the Berkshire, or Chinese; and as many as possible ought to be kept upon every farm (that is, as many as will consume all the milk and other remains of the dairy), and which may be fattened in the fall. That lean, hungry, long-legged, long-nosed animal, styled the Canadian pig, ought to be for ever banished. A good breed will produce double the lard, with half of the food. The Chinese, or Berkshire Boar, crossed with the breed of the country, for three or four years, will effect the necessary change.

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* Journal of New-Brunswick Society, p. p. 26, 45.

WAS IT PROVIDENCE?

Take, for example, a young girl, bred delicately in town, shut up in a nursery in her childhood, never accustomed to air or exercise—two things that the law of God makes essential to health. She marries; her strength is inadequate to the demand upon it. Her beauty fades early. 'What a strange providence, that a mother should be taken in the midst of life from her children!' Was it Providence? No! Providence had assigned her three score and ten years, a term long enough to rear her children and to see her children's children; but she did not obey the laws on which life depends, and of course she lost it.

A father, too, is cut off in the midst of his days. He is a useful and distinguished citizen, and eminent in his profession. A general buzz rises on every side, of 'What a striking providence! This man has been in the habit of studying half the night, of passing his days in his office and the courts, of eating luxurious dinners, and of drinking various wines. He has every day violated the laws on which health depends. Did providence cut him off? The evil rarely ends here. The diseases of the father are often transmitted; and a feeble mother rarely leaves behind her vigorous children.

It has been customary in some of our cities, for young ladies to walk in thin shoes and delicate stockings in mid-winter. A healthy blooming girl thus dressed in violation of Heaven's laws, pays the penalty—a checked circulation, cold, fever and death. 'What a sad providence!' exclaimed her friends. Was it Providence, or her own useless and sad folly?

A beautiful young bride, goes night after night, to parties made in honour of her marriage. She has a slight sore throat perhaps, and the weather is inclement; but she must wear her neck and arms bare; for who ever heard of a bride in a close evening dress? She is consequently seized with an inflammation on the lungs, and the grave receives her before her bridal days are over. 'What a providence!' exclaims the world. Alas! Did she not cut the thread of life her own self?