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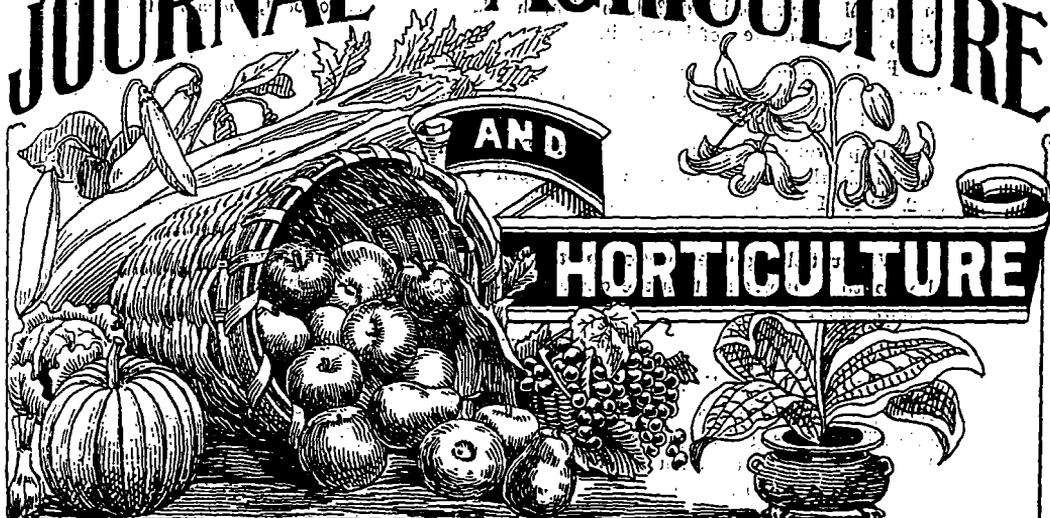
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THE JOURNAL OF AGRICULTURE



VOL. I. No. 9.

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

MAY 1, 1898.

Notes by the Way.

Flax and Alfalfa.—We fear some of our contributors only read their own articles, as a very curious question was asked us the other day by one of them: "Do you approve of farmers in this province growing flax and alfalfa—lucerne—?" To this we, of course, replied: "Certainly, we do; provided their land suits these plants." "Then, why are these crops not recommended to our notice?" The only answer to this was, that, if the enquirer would consult the *Journal*, he would find *alfalfa*, or *lucerne*, fully treated on pp. 7, 8, 14, 32, 49, 69, 86, 112, 114, 147, in the vol. of the *Journal* from July 1896 to June 1897, inclusive; and in numerous other articles spread over the issues of this periodical from its first number.

Flax, and its cultivation, may be studied at p. 89, vol. for '95 '96, and p. 147, vol. 1897, and in divers earlier numbers.

As we remarked, a short time ago, let nothing persuade the farmer to sell the seed; the fibre must leave the farm, but the seed, ground up with pease and oats, is the most valuable food for cattle and sheep that can be grown on the farm.

Any one who wants to see lucerne growing, can have an opportunity of satisfying himself as to its value by paying a visit to Mr. Bouthillier's farm at "Bleury," Ste-Thérèse de Blainville, who has been growing it for several years, and writes in the *Journal*, July 1st 1896: "I am glad to see you write in the *Journal* that lucerne is the plant for green fodder in this country. I think so too; I began cutting mine on the 12th of May, and finished the first cutting June 10th. During that time, as I was short of hay, I fed 14 horses on it three times a day."

The season.—A wonderful spring indeed! As the crows arrived on the 9th March, winter of course returned, and Holy-week was cold, as it almost invariably is: Saturday

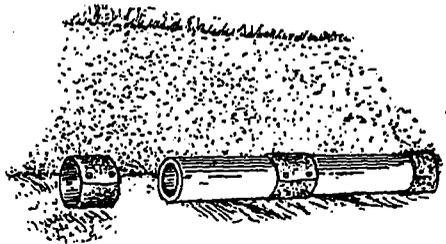
Sunday, Monday, April 2nd, 3rd, and 4th, the glass showed 22° of cold, and a nasty chilly wind, with a good deal of East in it.

Ploughing in full operation in the St John's district, and radishes said to be sowing in Laval county, on the 26th of March; but, as a friend suggests, it must have been in a hot-bed!

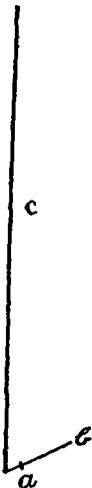
Tulips were piercing the ground in Dominion Square on Good Friday, and to-day, April 13th, they are well up. To-day, April 12th, our glass showed 68° in the shade, at 2. 30 P. M., and, as we write, it indicates 98° in the sun; this, at 11 A. M., is pretty rare for such an early date.

We trust the greater portion of the land intended for grain will be sown before the month is over, and that the cattle will be kept off the pastures till there is a full bite for them.

Pipe-Collars—In England, collars to fit the pipes are made at all drain-pipe factories. The cost is, generally, one-fourth of the price of the pipes, but as there is usually an inch or two spare room between the ends of the pipes inside the collars, the real cost is not more than one-sixth. We take the engraving below from an exchange. It must take both time and trouble to make collars out of tarred-paper, and when made they cannot be half as effective and durable as clay-pipes.



The pipe and collar-layer, which makes everything secure at one operation, is as taddy drawn as possible—for we are awfully awkward with pen and pencil, though pretty handy with bit and bridle, cue and cricket-bat, gun and rifle,—the tool in question is used in this way: the pipe and collar are threaded on the iron-rod *b*, the small boss *a* prevents the pipe from passing beyond it; the drainer stands across the drain, with his face to its mouth, and, working backwards, picks up on the rod *a b* a collar and pipe, laid ready for him, lowers them on to the bottom of the drain, gives them a tap or two with the rod *c*, and inserts the end of the next pipe, let down with its collar as *b* fore, into the end of the former collar. A man who understand this work will, after a little practice, lay pipes and collars far faster and more securely than one who gets into the drain, and thereby runs the risk of breaking down the sides. Of course, when drain-pipes of greater diameter than 5 or 4 inches are used, the man who lays them must get into the drain; but we are speaking of 1½ to 2½ inch pipes.



Butter.—"English people, it seems, eat more butter than any other people on the face of the earth. Is it partly through this that the British complexion is the purest in the world?" May the latter indisputable fact not be principally owing to the constant supplies of sea-air floating over the land? The various nations that have contributed to the population of the islands have doubtless fixed in a great measure their complexions on their descendants; Danes, Normans, Saxons, Kelts, have all had their influence, and it is by no means difficult to divine from what nationality the majority of the people of a given township or rape derive their descent, by a simple study of their hair and complexion.

Cost of cow-keep.—A correspondent of *Hoard's Dairyman* makes the following calculation of the cost of one cow for one year :

3,717 lbs. middlings	\$15.51
381 lbs. oil meal	3.50
Handling feed	2.51
1,124 lbs. hay feed	6.65
Corn silage	25.05
Pasture	6.86
Roots	4.06
	64.20
LABOR.	
Feeding and milking	23.45
Delivering expenses	17.79
Taxes and insurance	1.40
Repair and small items	4.52
Shavings for bedding	1.67
Doctor and medicine . . . . .	.61
Cost of barn room	10.55
Interest on value of cow	4.00
	63.99
Total cost 1 year	128.19
Credit cash income 1 year	142.24
Net profits per cow	14.05

The profit on the whole dairy of 35 cows seems to be about \$500.00 a year, and hardly that if we deduct the interest on the cost of the 56 acres of land, farm-house, etc., which the writer omits to do.

Spring.—By the time this number of the *Journal* reaches our subscribers, the land will, judging from present appearances, be fit to work. We need not impress on the farmers of this province how absolutely necessary it is to go to sowing as soon as possible. All the experiments that have been tried, both by private persons and by public institutions, prove that, with the land properly prepared, early sowing is certain to produce a better yield of better quality than later sowing. Only, work the land well; sow on the fall-ploughed furrow; harrow both before and after the drill or broadcast-machine, and roll last of all.

Crows in plenty by the 16th March, though, indeed, we heard one at Westmount on the 9th. To day (March 23rd), the buds of the soft maple are swelling visibly, and the sparrows no longer crowd round our door looking for their daily meal, but are busying themselves with their nest and young ones. It is not the town-sparrow that damages the farmers' crops. They are much too wise to leave the thickly inhabited districts, when food is always abundant, to starve through the winter on a chauce ear or so of grain in the country, and where they pass the winter, there they procreate their species, and rarely, if ever, desert their *natale solum*.

Porkers.—Mr. Alderman Lareau thinks that certain pigs *must* have been diseased before they were slaughtered, "as no one would be fool enough to kill pigs that did not weigh more than 48 lbs. a piece." Now, it happens that the favourite weight for porkers, for the supply of the best West-End of London trade, is from 45 lbs. to 50 lbs!

Hunting:--There are in the British Isles no fewer than 428 packs of hounds kept. Staghounds (the Royal pack is called Her Majesty's Buckhounds, though they hunt stags; the buck, the male of the fallowdeer, would not live half an hour before a pack of hounds), Harriers, Beagles, Bassets (new since our hunting days), and Otterhounds.

Experience in feeding working horses.—Wm. Hendrie, jr., manager of the G. T. R. cartage system of Canada, writes as follows to *The Farmer's Advocate*: In your issue of Aug. 16 I was interested in an address by Prof. I. P. Roberts to agricultural students of Cornell University on the Care of the Horse. The lecturer must have surely stretched a point in that part of his discourse where he maintains "a horse should be fed four times daily, and half the feed should come after six o'clock at night."

From a practical experience this would be a mistake. Horses in work (I take for granted the Professor is speaking of such) should not receive their heaviest feed at night, but their lightest. The reason being, the horse is necessarily tired with the day's labor, his digestive organs are affected, and when in that condition a heavy feed at night either does him little good or serious injury; colic, congested lungs, bowel complaint will arise from it. Our lorry and van horses are fed their heaviest feed (whole oats) in the morning, medium feed at noon, and lightest feed at night after six o'clock, and a case of colic is of rare occurrence since this system has been in force.

Why boys leave the farm.—Misdirected education has done almost as much as misdirected ambition to lead many boys away from the farm, to the serious loss not only to themselves, but of the country they belong to. Most people talk as if the only education worthy of the name must be got inside schools and colleges. People who know better are aware that education of the highest practical value can be got in a stable as well as in a university and the boy that can see nothing to learn in a plowed field may be crammed for years by a college don and still lack some of the best elements of true scholarship. The boy that never thinks about breeding and feeding on his father's farm will not get faculty by lectures on proteins and carbohydrates in a school of science or agriculture.—Nor-West Farmer.

The annual butter fair or exhibition, held this week by the Vermont dairymen's association at St Albans, and week after next by the Connecticut dairymen at Hartford, is a mighty good idea. The interest in these affairs is always keen. The lessons taught are so much appreciated that Maine dairymen, who feel that their butter has been underscored, are moving for a New England dairy fair, at which the butter, cheese and milk from all the six states may impartially compete for awards of merit. It is work along this line that is much more helpful and instructive than so many little country or local fairs. We have repeatedly suggested that some of the money that now goes into fair-premiums be employed to improve and enlarge the institute work, so that an exhibition or working school of dairy stock, feeding, veterinary practice, cooking, etc, may be a feature of these institutes. It is in this direction that agriculture is to be aided, rather than to continue the system of half-baked fairs and poorly attended institutes.

N. ENG. HOMESTEAD.

Whence comes butter-fat?

Not long since I received the popular edition of *Bulletin No. 132*, from Geneva, N. Y. Experiment Station, giving details of a noted trial of feeding a cow foods nearly free of fat. At the beginning of the edition it says: "It is quite commonly believed that the fat in an animal's body, or in the milk secreted, comes directly from the fat in the food." "A mistaken popular idea." I quote above to illustrate that sometimes what we know we don't know.

Janeville, Wis.

HOARD'S DAIRYMAN.

One of the much talked of experiments is that of Prof. Jordan's, in which a cow in full flow of milk was taken and fed a ration for ninety-five days, in which all of the oils and natural fats of the food had been chemically extracted, so that by careful experiment it was estimated that not over five pounds of fat could have remained. On this ration this cow gave over sixty pounds of pure butter fat, and in the time gained forty-seven pounds in weight, and was declared by the expert butchers to have added to her bodily fat during the time. In this cow's excreta all of the proteins consumed were practically accounted for, so that the only deduction that can be made is, that the fats in the milk were elaborated from the starches and sugars of the food, all of which is an interesting query: from whence the fats in the milk?

Lawes and Gilbert showed, years ago, that the starch, sugar, &c., were converted into the fat of the animal body. See the *Journal of Agriculture*. 1896, p. 83; " $\frac{2}{3}$ of the fat must have come from carbohydrates." Ed.

CUSTOMS REGULATIONS

Dear Sir,

It would be very useful to the importers of thoroughbred stock were you kindly to make an announcement in your paper in regard to a change in the Customs regulations.

As the regulations have hitherto stood the Customs officers have required the importer to leave on file in the office with them the original certificate both of the pedigree of the animal and of the tuberculin test having been made, showing freedom from disease. Instructions have just been issued to the officers of the various Ports to accept (in lieu of the originals) copies of these certificate, made either by the importer or the consignor, and, upon presentation, certified correct by the Customs officer. These copies will serve the purpose of a record in the official in case any dispute arises, and will obviate the inconvenience which has hitherto existed on account of importers having to part with the original certificates, which they frequently require for practical purposes, and having consequently to incur trouble, expense, and delay in procuring copies from the original makers.

Thanking you in advance,
I am,

Yours very truly,
SYDNEY FISHER

The Journal of Agriculture, Quebec, P. Q.

The Farm.

PURE WATER FOR FARMERS AND DAIRYMEN

By FRANK T. SHUTT, M.A., CHEMIST OF THE DOMINION EXPERIMENTAL FARMS.

An address delivered before the Convention of the Butter and Cheese Association of Western Ontario, at London, Ont. :

Your Directors in inviting me to this Convention, have asked me to address you this afternoon on the subject of a pure water supply for the farmer and dairyman. I am very pleased to avail myself of this opportunity to speak to you of what appears to me from an experience of many years, as a matter of great and, indeed, vital importance.

We have, as an agricultural people, been paying considerable attention of late years to improving our methods of farming, with the endeavour to make our business more profitable. We have, I may say, acquired a considerable amount of knowledge concerning those

principles which underlie and teach us what good farming is—the manuring and tillage of land, the composition and relative values of feeding stuffs, the requirements of plants and animals. We have not, however, as yet awakened to a realization of the importance to ourselves, our farm animals and for use in the dairy, of using water free from pollution.

Now, I am by no means an alarmist. I speak only of that I know. The analyses of hundreds of samples of well waters from Canadian farm homesteads convince me that the evil of contaminated water is a lamentably common and wide-spread one. Not that I am making any wholesale condemnation of farm wells, but this I do say that over 50 per cent of the samples sent to our laboratories for examination have been pronounced as dangerous or suspicious.

Let me at the outset say that there is no necessity for this state of affairs. The natural waters of Canada as found in lake and stream and spring are of the purest. They are unsurpassed in the world for quality and wholesomeness. We have ample data on this point. How then does it come about that such a large number of wells in rural parts are seriously polluted? What is the nature of the contamination?

Briefly, it follows from the altogether too, common practice of sinking the well, looking only to convenience, in the neighborhood, usually, of some source of pollution in the barnyard, the stable or under one or other of the farm buildings. Or, again, it may be situated dangerously near the pig pen, the privy or other polluting source. Near the back door where the household slops are thrown out is another favourite place, and I may add we scarcely ever find any precautionary drainage system to prevent this back-door water from soaking into the ground.

What is the result of all this? It is that a large proportion of the liquid manure, excrementious and waste matter finds its way into the well. Indeed, I have repeatedly found the well to be acting as a cesspit and its water really to be a liquid fertilizer, so charged was it with manurial matter. This, then, is the form of pollution that we have to guard against.

We may now enquire as to the danger that exists in drinking water charged with this polluting matter. First, there can be no doubt but what water containing drainage from the barnyard or privy acts as a poison upon the system. The action may be slow, it may be, and usually is, incidious, unnoticeable, but there is no doubt in the minds of sanitarians who have studied this question but that such water is the frequent cause of diarrhoea and indigestion, of sick headache and a general lowering of the vigor and tone of the system—making it susceptible to “catch” any disease there may be about. In other words, it may, and frequently does undermine the constitution. But, further, water so contaminated offers all the most favourable conditions for the development of disease germs, once they gain an entrance to the well—and they frequently to gain an entrance by the drainage of the privy containing the dejecta of patients suffering from infectious diseases. This is the way—the most common way,—at least,—in which typhoid fever spreads. I could cite any number of authenticated cases where the spread of typhoid has been directly traced to such a polluted water supply, and I am firmly of the belief that in this healthy climate of ours many a life has been sacrificed by the use of polluted water.

I might say a great deal more regarding the evil effects upon health of impure water, but I do not wish to unduly dwell upon this phase of the question. Be assured however, and I say it with all emphasis, that many an outbreak of fever in the country parts, in villages and upon farms, much impaired health is directly due to the use of bad water. Sooner or later the result comes, it is inevitable. We may not recognize the cause, for it may not come upon us suddenly—but examination shows only too conclusively where the trouble has originated.

Now, what is bad for man is bad for beast—and especially bad for dairy cows. Pure, wholesome milk can only be obtained from animals in good health. Is there any one who can gainsay the statement that good health and impure water do not go together? Whatever affects the system of cows must affect the milk, for the milk is from the blood, and the blood is

largely from the water the cow drinks. Lack of thrift in animals is, I believe, often a common result of an impure water supply. It is no use in this connection urging the argument that the cows like the water. Frequently is it the case, especially when they are not well salted, that they seem to prefer such water. Cows should not be allowed, as they often are, to drink of the pools of black stagnant water that have gathered from the manure pile.

And another word in this connection, I have more than once been able to trace an off flavour in cheese soon after making to bad water. Whether this has been *through* the cow or by washing the cans with the polluted water. I am not always prepared to say, but this I will say, and say most emphatically, that impure water should not on any account be allowed in the making of cheese and butter, nor in the cleansing of dairy utensils. It is no use preaching and practicing what is commonly termed cleanliness so long as the water contains pernicious and polluting material. Last summer I traced the cause at factories of bad flavoured cheese directly to impure water in three instances, and no doubt there were other factories having trouble in this respect that did not apply to me for help.

In conclusion, I would give some advice, based on a large knowledge of the subject. *First*, do not judge of the quality of a water by its appearance only. Many a clear, brilliant, sparkling water has been found to be reeking in filth. Of course, any water that is offensive either to taste, smell or sight should not be used.

Secondly: Tests of a popular character, such as one often sees recounted in the newspapers, are valueless. All farmers and dairymen who have reason to suspect their water supply should place themselves in communication with the Chemical Department of the Experimental Farms.

Third: Never sink a well in the barnyard or under a farm building containing animals. See that the well is at a safe distance from all possible source of contamination.

Fourth: Keep surface water out by lining the well with brick or stone work, laid in cement, to the ground water line.

Fifth: Protect the well by a top projecting somewhat above the level of the ground.

Sixth: Thoroughly examine and clean out the well from time to time; frogs, mice, etc., frequently find therein a watery grave.

Seventh: Don't throw garbage, household slops and the like near the well; the proper place for such is the compost heap.

Eighth: Keep the barnyard clean, and in this connection I cannot do better than emphasize the value of air dried much as an absorbent.

Ninth: Don't use the well as cold storage for milk, meat, etc. An accident would contaminate the water. Every farmer producing milk should have an ice house and proper accommodation in which to keep the dairy products cool.

Tenth: Never wash the dairy utensils at the well, for such a practice is sure to pollute the water.

THE CANADA THISTLE.

This intruder has invaded every farm in Canada and doubtless is just as plentiful in the States across the line. It flourishes in all kinds of soils.

No weed has been discussed so much as to ways and means of eradicating it, yet it lifts its head proudly year after year as an evidence of its vigor and reproductive power, while each summer in driving through the country, we see the seeds rising in big clouds from the fields, and seeking fresh fields to conquer. Some people will still tell us that thistle-seeds will not grow. This erroneous idea has doubtless come from the fact that all thistles do not bear fertile flowers and thus produce seed.

The main trouble is with the thistle plant for if we destroy the seed we shall have little trouble with the seeds. The Canada Thistle is what is termed a creeping perennial and also increases by creeping root-stocks which often extend to great distances in a single summer.

When not disturbed by cultivation, the buds in the joints of the roots usually remain in a state of sleep or latent, but if the root is broken, they become active and send up fresh plants at every joint. Thus it will be seen that certain modes of cultivation only serve to increase the number of thistle plants in a field.

In destroying the thistle the aim should be to cut off the upright stocks only and as frequently as possible without disturbing the side or latent roots; *shallow* plowing should therefore be practised, unless the nature of the crop calls for deep plowing. (1)

REMEDIES

1. Summer following:

Plow in fall and cultivate thoroughly the next season. This, if persevered in, so as to prevent the thistles coming to the top to breathe and storing up food in their roots, will be successful, but is a rather expensive method as a whole season's growth of a crop is lost.

2. Plow carefully after harvest not deeper than four inches; cultivate thoroughly plow again a little deeper (for the sake of the crop to follow) the last thing in fall; in spring cultivate thoroughly, plant corn in due course, take proper care of it, and the thistles will be defeated.

3. Plow the same as before; sow winter rye, cut the rye for hay or silage; plow and cultivate thoroughly; then sow rape in drills about July 1st.

Land well cultivated until about the end of June then seeded to buckwheat and plowed under at the time of flowering, will if well cultivated afterwards seldom give any trouble for thistles.

Lastly use the seed untiringly, in the orchard, the pastures, the fence-corners, yards and round stone piles. Do not allow a single thistle to go to seed, and you will soon be rid of the pests of the Canadian farmer.

G. F. MARSH,
Thornbury.

WOMAN'S INFLUENCE ON THE FARM.

MR. EDITOR,

I am a farmer's daughter, and as it is the fashion now for women to come to the front, I want, with your permission, to have my say. A good many people are of the opinion that we of the gentler sex should mind our own business; by which I suppose they mean exclusively, the care of the household; and perhaps the wife of a merchant or tradesman will do well to adopt this rule; for she is not supposed to be conversant with the "tricks of trade"; but with a farmer's family the case, it appears to me, is different. The occupation is a domestic one, and the family are members of the joint stock company, which runs the farm now, without sacrificing any part of their feminine prerogatives. The women can make themselves useful in a great many ways; only let a woman take an interest and she can lighten the burden of her husband's or her father's cares and responsibilities. Alas! there are men who are good workers, but poor schemers; would make better private soldiers than generals. My father, although a good man in a very other respect, lacked this quality of generalship, and my mother was so much engrossed with the cares of a numerous family that she had little time to think of anything else; so, when I grew old enough to observe, I found that our affairs were not in so prosperous a condition as they might be, and, without appearing to be meddling, I determined to try to effect a change. With this end in view I kept a diary, in which I recorded the operations and events of each day. I also kept, as well as I could, a rough account of income and expenditure, as near as I could estimate or ascertain them.

Our next neighbour was a good farmer. I used to get some lessons from his son and

(1) In S. E. England, deep ploughing with the turn-wrest plough is the great remedy. ED.

watch with interest what he was doing. Making notes of the time and manner in which he prepared and applied the manure; the dates on which certain fields were plowed and sowed; the condition of the soil; and other particulars which I thought might be of practical use in the future, I then contrived to get an account of the yield of the crop, when harvested, and added this to my memoranda.

My father was a man very hard to be convinced and, like all procrastinators, given to grumbling about his ill luck. He even went so far as to say that Providence favoured neighbour Jones! Some may think that I was wanting in respect to my parent to presume to correct his proceedings, but I felt that, if I could do this, so as to work an effectual change which would be to the advantage of us all, the end would justify the means. One day, after the men had been threshing some oats, he commenced as usual finding fault with the yield and quality, saying "somehow our oats don't come up to old Jones's again; I can't think how it is." I thought, now was my opportunity, and said: "Well father, with all due respect, will you permit me to try to explain why it is." He was at first, I think, inclined to look upon this as a little impertinent, but presently said: "If you are so wise, give us your opinion." I then took out my note book and read "Mr. Jones gave home-field a dressing of compost which had been mixed with lime August 20th to 26th, plowed Sept. 12th and following days, sowed April 10th after a good cross-harrowing, with some seed he received from the West, a new kind of oat in this locality, called the Banner. Land a little moist, but Tom says, in good condition for sowing. After the oats were between one and two inches high, clover and grass seed were sown and land rolled with a light roller. Some thistles made their appearance while the crop was growing, but were cut out with a "spud". (Very good, Ed.)

Now let us see what we did, or did not do. I say *we*, for remember I have constituted myself an advisory member of the (to be) "Prosperity Hill Joint-stock farming Association; Capital, Very limited". Now we will compare notes. We did *not* manure or lime our land, we grazed every bit of grass off it, until late in the fall, and only plowed some of it then and the balance in the spring. We provided no fresh seed, but sowed the same sort we have been sowing ever since I can remember; we sowed our seed nearly a month after Mr Jones; took no pains to prepare the land, nor any care of the crop after it was planted. We did nothing until the last moment, and then in a slipshod manner; and now we think we are hardly dealt with by Providence! I then made a few other extracts and comparisons from my "Diary" which astonished my father, but after he had got over the chagrin of having his short comings thus brought to his notice, the better side of his nature prevailed, he acknowledged the truth of my arguments, and I was duly installed in the office of advisory member I had so daringly assumed.

Then, I began some practical work. I undertook the care and management of the poultry; I read "Gilbert" in the "*Journal of Agriculture*" and other writers on the subject: studied the theories of breeding and feeding propounded by the best authorities, and put them in practice to the best of my ability. Far from being a fatiguing or irksome occupation, I found poultry raising both delightful and profitable. I believe, looking at it from a motherly stand point, that next to the care of children there is nothing so fascinating to the female mind as rearing chickens. I next turned my attention to the orchard and garden, which had always been neglected, and soon made these contribute to the profits. I also kept the men-folks up to the mark as regards the regular cleaning, feeding, and milking of the cattle, and saw that the dairy utensils were kept immaculate. I did all this, not by undue interference, but by gentle words and systematic example; I kept all records and accounts and could tell exactly what was done and when, also what each field and each animal realized in profit. In a word, I brought order out of chaos, and prosperity out of a continuous struggle to make both ends meet. In due time I was married, and although I am surrounded by little ones, I manage to find time to assist my husband in ways, which, like a sensible man, he appreciates.

I trained one of my younger sisters to take my place on the old farm when I left, and

no one would know it now to be the same place it was when I was a child. I have written this brief sketch to show what one girl's influence has done, in the hope that many of my own sex in the rural districts may see what power for good they possess; and in the hope that they may be induced to make use of it for the sake of those they love, and for the public good.

JULIE BOVIN.

GRAZING OF PASTURES

It was an old belief of English graziers that it is good for a pasture to be eaten off very close not infrequently, and particularly in early summer. A pasture well eaten down will be more nutritious when it first springs than at any other stage of growth. The reason is the close feeding tends to the production of a fine close even turf, such as all experience teaches is excellent for cattle, and it prevents at the same time any tufts of grass from growing up tall, and becoming unpalatable. In some grazing districts I have known rough pastures to be greatly improved by grazing them close with ewes in winter, when the animals are receiving dry feed. On the other hand, there is the danger of overstocking a pasture to be guarded against, the disadvantages of overstocking being scarcely capable of being repaired.

Then, again, generally speaking, the more varied the kinds of stock fed upon the pastures at different times, the better. But the judicious mixing of animals in pastures is not so easy a matter as one might suppose.

Some favour putting a few horses or colts in pastures, together with or after cattle, as they do good, in the same sense that sheep do good by eating various kinds of plants, which cows and oxen will pass by. But horses are inferior in this respect to flocks of sheep, inasmuch as they do not feed evenly. An American authority, whose name I have forgotten, points out that so far as the chemistry of the subject is concerned there can be no doubt, that pasturage can be more thoroughly utilised and the fields kept in better condition by mixtures or alternatives of several kinds of animals, than by any one single kind, for not only will the different species of animals, eat different kinds of grasses and weeds, and eat any one kind, at different stages of its development, but there is furthermore the very important consideration that while each species dislikes to feed near its own dung, it is much less scrupulous about feeding near the dung of other animals.

A few horses, for instance, running in a grass pasture, will be apt to keep down the rank growth of grass, where the manure of the cattle has been dropped, and they will graze, too, where cattle have trampled the grass. A method sometimes practised by graziers in the Midland counties of England is to turn into pasture of clover and rye grass a certain number of store bullocks as companions to fattening sheep. The bullocks eat off those bents of rye grass, which the sheep have allowed to shoot up, and they are thus kept in good enough condition to stall-feed in the autumn and winter. Meanwhile, the sheep get a better bite, simply because the pasture is kept cleared of useless stalks. The same idea prevails in the low-lying rich pastures of Lincolnshire. These pastures were usually stocked in May, in such wise that those devoted to sheep got one young steer to each twelve sheep. The number of animals allotted to the acre, can be varied according to the quality and condition of the grass, but care should be taken to keep the grass closely cropped, since rank herbage is apt to injure the health of sheep. On the pastures devoted to fattening bullocks the practice is to allot one horse to every dozen oxen, but here the grass is allowed to grow more freely, than in the sheep pastures, since fattening bullocks require a plentiful supply of grass, in order that they may feed quickly, and have ample time left, in which to ruminate. The old saying of some of our most experienced graziers, that grass should be four and twenty hours old for a sheep and twelve days for a bullock, still holds good.

The Manurial Value of Grazing Stock

The effectual distribution of the droppings of stock in pastures, and more especially the distribution of the dried clots of dung from cattle, has always been an insuperable difficulty. How can they be scattered with economy upon the surface of the land?

The urine of cattle on pasture is well disposed of. It sinks at once into the earth, and is probably distributed there as well as it possibly can be. But with the dung of cattle it is a very different matter. When left as dropped, some plants are killed by it altogether, while the adjacent grass shoots up rank and coarse, and is notoriously unpalatable to cattle unless it be mown and wilted, or unless it has been touched by frost. If the dung could only be spread or scattered no grass would be killed, and none would be made unduly rank, while the general fertility of the field would be increased.

It ought surely to pay in every instance to spread the dung with the chain harrow, which, drawn by one horse, can be made to go lightly over the dung clots, and, while scattering them, further improve the pasture by raking up mosses and airing the sod generally without tearing it.

W. R. GILBERT.

The Poultry Yard.

STANDARD WEIGHTS OF BRONZE TURKEYS.—HEAVY BIRDS BRING BEST PRICES.—GEESE AND DUCKS.—A BETTER QUALITY OF POULTRY AND MORE OF IT WANTED.

(A. G. Gilbert.)

The following are the Standard weight of Bronze turkeys, male and female; geese and ducks. There is hardly any apology necessary for returning to the subject of turkey raising, for it is an industry that is rapidly becoming a foremost one in the great department of Agriculture and for the successful development of which Canada is eminently qualified. The breeding of geese has not assumed the widespread proportions that turkey rearing has; why, it is hard to say, for beyond peradventure there is money in geese. There is at the present day, this difference in the turkeys and geese of Canada, that the great majority of the turkeys raised are fit for shipment to the Boston or English market, while with the greater number of the geese brought in by the farmers, the reverse is the case. I do not mean to say that geese fit for shipment to the London market, are not sometimes to be met with, but the exception is the rule rather than otherwise. For instance, last December geese were purchased by the writer from A. Thompson of Allan's Corners, in the County of Huntingdon, some of which weighed when killed, plucked and dressed for exhibition, as part of a dressed poultry show, 17 lbs 10 ozs each. Such birds would fetch a good price in England. And I was assured by Mr Thompson, that a little earlier in the season he could have procured many such

Large Birds fetch large figures.

But you must first catch your hare before can skin it. So you must first get your large turkeys and geese before you can get the weight. If any of your readers wish to know what a big turkey means, let them write to Mr W. Bonneville of Danville and he will tell them. He will also inform them that he has received prices for his live Bronze turkeys, per pair, in Great Britain that will be veritable eye-openers.

To have the heavy weight then a large breed of turkeys is required and the following are the weights of the Bronze turkeys, as given in the Standard:

Bronze Turkey Cock	32 lbs.
“ “ Hen	22 “

At some of the Exhibitions male birds have been seen which weigh 38, 40 or 42 pounds each, but birds of the Standard weight, as given above, will make good breeders. A farmer told me not long ago that he had good results from a White Holland male crossed with common-turkey hens. A Bronze turkey cock crossed with the ordinary turkey hen will doubtless give improved results, but best results will be had from thoroughbreds. It is the same in the smaller fowls. A thoroughbred Plymouth Rock, Wyandotte or Langshan will make larger and better off-spring when mated with the pick of the common barn yard fowl, but best results, in flesh-weight, will follow breeding from thoroughbred Rocks or Wyandottes. But, you say, when circumstances do not permit, is it not admissible to use a thoroughbred male to improve our stock? Certainly. It is commendable to make progress, even if it be comparatively slow.

Geese.

The heaviest breeds are :

Toulouse Gander, adult	. . . . .	25 lbs
“ “ young	. . . . .	20 “
“ Goose, adult	. . . . .	25 “
“ “ young	. . . . .	18 “

The Embien, an equally meritorious breed are of the same weights. In France, the raising of Geese is extensively and profitably prosecuted as indeed is poultry raising generally:

Ducks.

There are three popular breeds of ducks the names and weights of which are :

Pekin	drake...	adult	. . . . .	8 lbs
Do	Do....	young	. . . . .	6 “
Do	duck...	adult	. . . . .	7 “
Do	Do....	young	. . . . .	6 “
Aylesbury	drake,	adult	. . . . .	9 “
Do....	Do....	young	. . . . .	8 “
Do....	duck....	adult	. . . . .	8 “
Do....	Do....	young	. . . . .	7 “
Rouen....	drake..	adult	. . . . .	9 “
Do.....	Do....	young	. . . . .	8 “
Do.....	duck..	adult	. . . . .	8 “
Do.....	Do....	young	. . . . .	7 “

The weights of the above breeds are given in full, for there is general and great lack of knowledge as to the superiority of the thoroughbred ducks over small barnyard non-descript, duck so common throughout the country. Ducks grow so rapidly and mature so quickly that it is a matter of astonishment that more are not bred by the farmers in the neighborhood of our cities and large towns. Ducks are prolific layers and are free from many of the ailments peculiar to young chicks. But young ducks require great care, as was remarked in a previous article. James Rankin, the veteran duck breeder of Massachusetts, says:—Your artificially-grown, scrap-fed duckling of the interior is a far different bird from his fish-fed brother of the Coast. He has been educated to a complete indifference to water, except to quench his thirst. Taught to take on flesh and fat instead of feathers, his body is widened out and rounded off, and when properly denuded of his feathers, is a thing of beauty.

And the statement is undoubtedly correct. The artificial hatching and rearing of ducklings to supply the restaurants and great hotels of Boston and New York, is an industry which has assumed enormous proportions in the Eastern States of the Union. It is prosecuted on a comparatively limited scale in Canada.

We want to breed more Poultry.

While the farmers of Canada may be backward in geese and duck raising, it is a source of congratulation that turkeys are grown to a much greater and more successful extent than ever. The season just closed has seen a finer quality of turkey flesh, more of it, and better prices paid for it than, perhaps, ever before. Particularly so in the case of the Turkey fair at Smith's Falls, Ont., on the 15 th and 16 th December last, when nine to ten a half cents per lb were paid to farmers for their birds. And in many cases the shipments to the English market were successful beyond anticipation. What we want is a MORE GENERAL PRODUCTION of a superior quality of poultry of all kinds for home and foreign consumption. The Government of the country has furnished cold-storage transport facilities. It now remains for the farmers to produce the superior quality of birds to capture the gilt-edged price. Can they do so? Beyond question, certainly.

Experimental Farm

Ottawa, 6th April, 1898.

Orchard and Garden.

THE OYSTER SHELL BARK-LOUSE

And the Spraying of Orchards

BY JAMES FLETCHER LL. D. DOMINION ENTOMOLOGIST.

An insect which is doing a great deal of harm in Canada and of which many specimens have been sent in for information from the Province of Quebec is the Oyster-shell Bark-louse. This insect like many others which injure our orchards thrives most on unhealthy trees. Being of small size and resembling much the bark in colour, it is frequently overlooked until it has done so much harm that the infested tree is injured beyond recovery. When detected, therefore, measures should be adopted for securing a vigorous growth of the tree as well as for the removal of the scale insects. As this is the time of the year when the Oyster shell Bark-louse can be fought to the greatest advantage. I beg to call the attention of fruit growers to the subject, so that they may examine their trees and, if these are found to be infested, may apply the remedies recommended and avoid further loss from this insidious enemy.

The life history of this insect is remarkable. About the 1st of June minute white mite-like insects emerge from beneath the scales which have been on the bark all through the winter and for two or three days, during which time only of their whole lives they have the power of moving, run about over the twigs looking for a suitable place to attach themselves. They then pierce the young bark with their slender beaks and live on the sap of the tree. They never move again from the place where they first pierce the bark. Each gradually secretes a waxy mantle and by August has become by the drying up of the body of the insects, practically a mere waxy scale covering a cluster of eggs. These remain unchanged through the winter and the young do not hatch until in the following June.

Remedy.—As stated above, the Oyster-shell Bark-louse occurs chiefly upon unhealthy trees, and it has been noticed that apple-trees planted in sod are much more liable to the attacks of this insect than those around which the soil is frequently cultivated and enriched. In order to rid an orchard of this enemy, it is therefore important to induce a vigorous growth of the trees by breaking up the sod and frequently cultivating and enriching the soil.

As a remedy against the insects themselves, diluted kerosene emulsion should be

sprayed upon the trees in the spring before the leaf buds burst, by this means most of the scales will be destroyed. This treatment should be repeated in June at the time when the young insects issue from the mother scales.

To prepare kerosene emulsion, dissolve half a pound of hard soap or one pound of soft soap in one gallon of boiling rain water. Take from the fire and while the liquid is boiling hot pour it into a large vessel containing twice the same quantity (2 gallons) of kerosene or ordinary coal oil used for lamps; then with a syringe or force pump churn the mixture constantly and forcibly for five minutes, when it will be of a smooth, creamy nature. This gives the stock emulsion, which before being applied to plants should be diluted with 9 times its volume of water for summer treatment or 4 times for winter application before the buds burst.

Insects breathe through small orifices along the sides of their bodies. The effect of the emulsion is to suffocate them by closing up these pores.

The Spraying of Orchards

In this connection it may be mentioned that it has been observed that the occurrence of the Oyster-shell Bark-louse is very much lessened upon such trees as have been sprayed with Bordeaux mixture for the prevention of the Black Spot of the apple and other fungous diseases. The wisdom of spraying fruit trees regularly every year for controlling fungous diseases and insect pests is now generally recognized by the most advanced fruit growers and business men. For this purpose a joint application of the best remedies for these two classes of enemies can now be made. For foliage-eating insects there is a standard mixture of one pound of Paris green and one pound of quick lime in 200 gallons of water; similarly, for fungous diseases which develop on the surface of plants the Bordeaux mixture is the standard remedy. This, as recommended for fruit-trees is made as described below and the two mixtures can be combined and sprayed upon the trees in one application.

Bordeaux mixture and Paris Green

Copper Sulphate	4 lbs.
Quick Lime	4 lbs.
Paris Green (for leaf-eating insects)	4 oz.
Water (1 barrel)	40-50 gals.

Dissolve the copper sulphate (bluestone) by suspending it in a cotton bag near the top, inside a wooden or earthen vessel containing 4 or 5 gallons of water. Slake the lime in another vessel. If the lime, when slaked, is lumpy or granular, it should be strained through coarse sacking or a fine sieve. Pour the copper sulphate solution into a barrel, half fill the barrel with water, add the slaked lime, fill the barrel with water and stir thoroughly. It is then ready for use after the addition of the Paris Green.

A stock solution of copper sulphate and milk of lime may be prepared and kept in separate covered barrels through out the spraying season. The quantities of bluestone, lime and water should be carefully noted.

As many of the fungous parasites pass the winter in a dormant state upon the twigs of trees, it is a wise practice to spray the trees before the leaf buds burst with a simple solution of 1 pound of copper sulphate in 25 gallons of water. As soon as the copper sulphate is dissolved, this is ready for use. It must be used only upon the bare trees before the leaves expand. The first spraying of the combined insecticide and fungicide should be made just before the blossoms open, and this must be followed by two or three subsequent applications a fortnight apart.

Some of the most important pests of the orchard will be kept in check by this treatment, such as the Black Spot of the apple and pear, the cracking of pears, the codling moth and apple curculio, the Plum Curculio; Plum Pockets, Plum Rot, the Canker-worm, Tussock Moths, Tent Caterpillars and many others.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST.)

TAKE CARE OF YOUR EYES.

Many young people lay up for themselves, in after life, a lot of trouble by not taking good care of their eyes when young. Reading by twilight, or fire-light, is most hurtful yet how many there are who make a practice of doing so.

It may be to finish a bit of fancy work, or to continue the reading of a very interesting book, in fact, not even giving themselves time to get a light.

When reading, the light should be placed so that it falls over the shoulder on to the book or work.

Side-lights are very injurious to the eyes, and tinted lights should be avoided as much as possible.

Reading in bed is ruination to the eyes, causing a very unnatural strain to them. (Unless sitting nearly upright. Ed.)

A sponge wrung out of cold water, and applied to tired eyes will give relief.

Eyes that blink or smart may be made stronger by bathing them in a little salt and water morning and evening. By far the most important of all, is to take good care of them when young.

Scrambled Tomatoes

Two cups of canned or ripe tomatoes, one cup of fine bread crumbs, one large table spoonful of butter; salt, pepper and sugar to taste; put all together in a bowl; place an iron frying-pan upon a hot stove and let it get as hot as possible; turn in the mixture, and stir for ten minutes.

After eating tomatoes cooked in this way no one will care to stew them.

They can be put in a dish with crackers and a thin layer of cheese on the top and baked, and will be found very good.

Beware of Impurities,

Housewives should beware of all sorts of impurities. Dirt breeds disease even when concealed. Out of sight out of mind; but it may be fatal forgetfulness, and the impurities you have been getting out of sight may come back in the shape of low fever or typhus, and take you and your household captive.

Beds and bedding,

These should be looked to and cleansed at least twice a year. And just now is the time to catch, kill and exterminate that unpleasant pest the *Red-Indian*. (1) Now, early in the spring, before the eggs are hatched is the time to attack the foe, before it gets the mastery. Nobody likes the unwelcome task, but it must be done, and that thoroughly, or the work will have to be gone over again soon. Wash and clean, as well as you can, every part of the bed; when quite dry apply, with a feather or brush, a good dose of turpentine; do not omit the smallest crack or split in the wood, for it just in such spots they are most likely swarming. A bit of tape drawn through such places will tell you by its smell if they are there. Keep drawing the tape up and down till you have cleansed the crack, and then fill up with putty. Carbolic acid will kill everything, but people do not like to have it about the house where there are children.

(1) A creature unmentionable to ears polite, in England, except by a periphrasis. Ed.

Like many things, this pest can be got rid of by cleanliness, and just now, when everything is coming into life, is the very time to set to work to destroy the obnoxious and cultivate the beautiful.

Place dishes of charcoal or quick lime in sink-cupboards or other damp corners.

If a cellar bottom is of earth and has boards laid down to walk on, have them all carried out-of-doors and thoroughly cleaned and dried. After thoroughly cleaning the floor, sprinkle it with a solution of coppers, open doors and windows and let the sun and wind reach the farthest corner.

If a cellar is damp and musty, it is well to add a little coppers to the lime which is used in whitewashing the side walls.

If there is no wire netting over the cellar windows, neglect it no longer, for damp, foul air in a cellar will quickly permeate through the entire house and endanger the health of the inmates.

HOUSEKEEPER.

Treatment of Damp Shoes.

Damp shoes should be cleaned and rubbed with vaseline as soon as they are removed. Then they should be filled with oats and set aside. In twelve hours the oats will have absorbed the dampness and the leather will be as soft as when new.

To get comfortably fitting shoes buy them in the afternoon when the exercise of the day has spread the muscles of the feet to their largest extent.

"Answer the children's questions when they ask them," pleads a lover of children. The questions of an intelligent child are the effect of the educational forces with in him. To deny a child food when he is hungry is to deny nourishment to his body; to deny him the knowledge demanded by his questions is to refuse food for the growing mind. (1)

(1) Very sound advice indeed. Sala, in one of his papers, "Breakfast in Bed," is worth reading on this point. A hasty, "Don't bother," does more harm in repressing a child's "I want to know," than any one can remedy in many a long day. Eu.

