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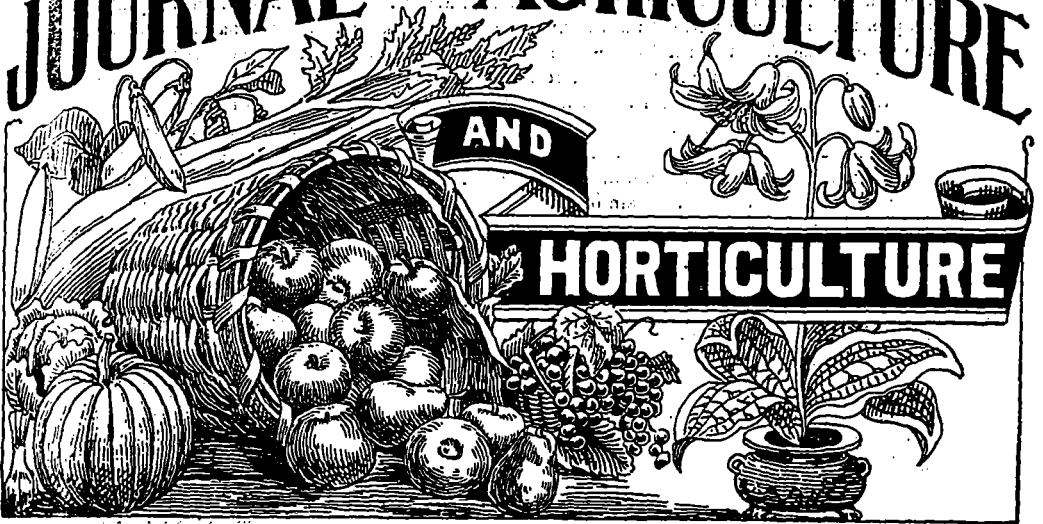
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THE JOURNAL OF AGRICULTURE



VOL. 1. No. 12.

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

JUNE 15th, 1898.

Notes by the Way.

On the 25th of May, at the request of Mon^e. C. F. Bouthillier, we paid a visit to his farm at Bleury, Ste-Thérèse, with a view to the discovery, if to discover it was possible, of the cause why, in some patches, the lucerne in the sandy enclosures near the château has completely lost plant.

The *alfalfa*; as the people in the States call lucerne; a word that signifies "the clover," the definite article in Arabic, *al*, denoting its super-excellence over other kinds of clover; was sown in the spring of 1897, after the utter destruction of the previous plant of the same crop; then in its fourth year; by the well-remembered most baneful frost of that terrible spring.

On visiting the lucerne-field, we were glad to find that the vacant spaces were neither so numerous nor so extensive as our friend's letter had led us to dread. In part, out of three arpents, or so, of the plant there could not have been more than a quarter of an arpent that had disappeared. On this, however, the lucerne had entirely vanished, with the exception of two or three plants, that were perfectly healthy, presenting the thriving appearance of the remainder of the piece.

As to the cause of this lost of plant, we may as well say at once, that we could arrive at no definite conclusion. We are inclined to think that there may exist some peculiarity in the soil of that part of the field that does not agree, as medical men say, with lucerne; there may have been some insect or grub, that preys upon the root; it cannot have been the *lodder* (*cuscuta*), for the reason that that net-like ravager of clover-fields does not arrive till later in the summer; or, lastly, and we say this hesitatingly, the too frequent repetition of the same plant may have rendered the land hostile to its growth, as in the case of red clover in England.

All we could do was to recommend M. Bouthillier to change the site of his lucerne-field as soon as possible. He proposed to cart 150 loads of clay to the arpent over the

present piece, but the labour involved in the operation would be very great, and we think the change of locality would be preferable. At all events, we should never again repeat the crop in the same land without an interval of at least 6 years; for, perennial though it be, the vermin that feed upon it doubtless increase in myriads during its long occupation of the same plot, and overpower its powers of resistance great though they be.

Would it not be as well for the owner of the land to send samples of the soil to Mr. Shutt, the Chemist of the Experimental-Farm at Ottawa, for analysis? The two parts, the successful and the unsuccessful, should be tested, and, perhaps, some definite conclusion may be reached; but the main difficulty remains: Why do the two or three plants, with abundant stems and leaves, remain on the bare space, as healthy as the lucerne on the rest of the field, while all their companions have utterly vanished.

Central Experimental Farm,
Ottawa, May 30th 1898.

A. R. JENNER FUST, Esq.,
4, Lincoln Avenue, Montreal.

My dear Mr. Jenner Fust,—I have read carefully, your note on Mr. Bouthillier's lucerne field, and you seem to have covered in your investigation almost everything that could have been examined into to find the cause of the vacant spots. From what you say of the lay of the land, I judge that water lying on these spots in the spring was impossible. This, of course, is the commonest cause of these dead patches in clover fields. I have only one suggestion to make and I cannot tell from your letter whether you examined into this matter. There are many kinds of insects which attack lucerne as well as the other clovers, and it would appear as if these gaps might have been due to the presence of some insect. It will hardly be worth while, however, for this cause alone to break up the lucerne field, as from the vigorous plants still standing it would appear that the attack has now stopped. I have read your letter to Mr. Shutt, and he says that he will be pleased to analyse the soils if Mr. Bouthillier will send him samples taken from the barren spots and also for comparison from some other parts of the field where the lucerne is growing satisfactorily. Please also send with these samples a statement as to the depth of the surface soil, the nature of the sub-soil and the history of the field for the last year or two, previous to its being sown with lucerne. (1)

Yours very truly,

J. FLETCHER.

PATCHING UP CLOVER FIELDS.

It frequently happens that from some cause or other clover fields are found to be patchy in spring. In cases of partial winter-killing much may be done in "patching up" such meadows in spring. Early in the season this is best done by harrowing, re-seeding to clover, and then top-dressing lightly with manure. Sometimes the patches are small and a reasonable hope may at first be entertained that the clover will recover sufficiently to give a crop; but, should those hopes not be realised, then good results may be obtained by patching with German or common millet or Hungarian grass. This practice was followed successfully by Mr. C. D. Tylee on a patchy clover field close to M. Bouthillier's property last year. The various grasses generally known by the name of Millet are the *Setarius*. The seed should be sown as thickly as a bushel to the acre when broad-casted, when it will make fine sweet smelling nutritious fodder, much relished by stock. If cut early and well cured it is equal to any hay and is ready for cutting as soon as the heads begin to appear generally over the field. If left later than this it deteriorates rapidly and when ripe is actually harmful to horses. Its rapidity of growth in 6 or 7 weeks after sowing shows its availability as a catch crop in case of a failure in hay.

J. FLETCHER.

The country, as we write, on May 27th, is looking splendidly. For many years we have not seen a greater promise of good crops, of all kinds; pulse as well as grain, pastures

(1) M. Bouthillier will doubtless attend to this kind offer of Mr. Shutt. Ed.

as well as meadows, all are flourishing. We do not know how the other parts of the Dominion are doing, but if they resemble the country round Montreal, the prospects of the farmer are indeed favourable.

Prices for wheat, as of other cereals are good, but unfortunately, our folk here, in the East, have none to sell. In England, Manitoba wheat, No 1, was selling, from the latest reports, at 57s. a quarter, equal to \$1.71 an imperial bushel! Canadian oats were worth, at Mark Lane, 60 cts; no Canada barley in market, but our white-pease fetched 93 cts.

Butter and cheese are low in price here—7 cts a pound for cheese, and 16½ for butter do not look profitable. In England, where, on May 16th, the first lots of new cheese were just coming in, some samples sold as high as: Cheddars, 60s. the 112 lbs.; Glo'sters, 58s.; but prime last year's make of Cheddar was worth 74s., good Canadian Cheddars, of September and October, 1897, make, brought 46s.

In bacon and hams, the markets were all out of shape.

Canadian bacon is said, by the reporter for *The Agricultural Gazette*, "to arrive in much better condition than that from Denmark and Ireland, and to be finding increasing favour in England." Best Irish, from 48s. to 64s., for 112 lbs.; Canadian, 50s.; long-cut Canadian hams were worth 50s.; best Irish, as much as from 80s. to 94s. If our bacon men will keep on with the use of pease for their hogs, particularly towards the end of their fattening, the interval between Canadian and Irish bacon will soon be made narrower. The English, nowadays, cry out for Canadian bacon and ham, though how lean hams can be tender, we do not see. The jolly great hams that we use to make, on the "home-farm" of our early days, would now be hardly saleable, but we have never tasted finer meat than they were, after 3½ hours simmering. Barley-meal and skim-milk up to three weeks before death; pease and water for the remainder of the hog's life.

Wool is too low in price to be worth talking about: Down tegs (first clip) are at 20 cts a pound; Kents and half-breeds (Down and Longwools) 16 cts. So mutton is the better part of the sheep, now, though the best of that is only fetching 15 cts a pound, sinking the offal. Beef is worth 12½ cts; veal, at the dead-meat market, 14 cts; and pigs, 14 cts for small to 9 cts for big hogs.

London "loads": 2016 lbs. of clover-hay are worth \$23.28; of meadow-hay, \$19.20.

Newly calved Dairy-Shorthorn cows are in abundant supply at Islington, at prices running from \$105.00 to \$110.00.

ADDRESSED TO THE U. S. PEOPLE.

Last year I told you that butter, suitable for the English markets, should be pale, light-salted and waxy. I tell you just the same this year.

You err in color; you err in flavor; you err in texture. I will qualify this statement: The butter that reaches this country from the States is not all that it should be in color, flavour, or texture. And yet shippers fail to understand their non-success.

I know what Minnesota butter is like. I have tested it on its own soil, and I now state that it could easily be made to sell freely and profitably on English markets.

Manchester, Eng.

W. R. KENNY.

EARLY PASTURING GRASS.

A dispute is going in the *Howd* as to whether it is wise to feed off pastures as soon as there is anything on them, or to wait till there is enough grass for a cow to lap her tongue round. Prof. Daubeny, of Oxford, England, proved 60 years ago, that nipping off the first shoot of the grass reduced the total product of the season by one-third.

The following is good advice:

Ed. *Howd's Dairyman*:—A wet cool spring caused the grass to grow rapidly, and some people are turning the cattle out, but the pasture grass is so watery that unless the cows are

fed some dry feed and grain, they are apt to lose in flesh and shrink badly in milk, later.

But the next, from the same paper, is not so good :

“ The men who advocate the general purpose cow for straight dairy work, have had no true dairy experience. ”

Mr. Jas. Long, is a well known Dairy-expert. He evidently does not agree with those who hold that the fat-percentage cannot be increased by high-feeding :

SWEDISH DAIRY FARMING.

Prof. James Long of England, writes to the *Dublin Farmer's Gazette* an interesting letter on the dairy methods practiced in Sweden, from which we take the following extracts :

“ In the co-operative factories of Sweden, considerable attention is paid to the maintenance of quality and purity in the milk. Milk is chiefly bought upon the basis of its butter-making properties, the farmer being, therefore induced to make careful selection among his cattle and to feed highly with the object of increasing the fat percentage. ”

Here is another important series of experiments :

NUTRITIVE PROPERTIES OF SUGAR.

Sugar is a substance as necessary for life—that is, for alimentation—as bread and meat. Prejudice, up to the present, rules that sugar is only a condiment, like pepper, salt, spices, etc., useful as seasoning. Germany is experimenting in the employment of sugar in the feeding of her soldiers. She is also experimenting with the molasses (next to a waste product) from the beet sugar mills in the feeding of farm stock, for Germany turns out annually one-fifth of the world's sugar crop. Nor has the question been over looked in France, though not studied as it will be ; for in the consumption of their sugar lies the escape of the French from the terrible bounty tax. M. Bernard, of Coupvray (Seine-et-Marne), buys poor, cheap wheat, grinds it, mixes it with bran and adds one-third part of beet sugar treacle or molasses ; kneads the mass, and bakes it into a kind of ginger bread looking aliment. It stores well, escapes all attacks from insects and vermin, and can be readily transported any distance. Year after year he feeds his stock with his “ cakes ; ” the daily ration is, for oxen and milch cows, 6½ to 11 pounds, 2½ to 4½ pounds for horses, 2 pounds for sheep, and half that quantity for lambs. It is a cheap diet and highly relished. In southern Russia farmers dissolve the molasses in lukewarm water, pour it over chopped hay, and give the mass to the cattle. It replaces in part oil cake and the stock are never attacked by any disease. M. Bernard finds the use of molasses corrects the debilitating effects of too aqueous food. Germany does not see her way in the matter so far, the expense of working up the molasses being too high. This difficulty has induced Dr. Rumin, of Bonn, to experiment upon twelve milch cows at Poppelsdorf for four months, ending April, 1896. Molasses were used with six substances as forage, in which peat or turf, reduced by patented machinery to an impalpable powder was included ; then came palm oil seeds, palm oil cake, potato pulp from the *fecula* mills, sliced mangels, and crushed barley. In addition to the molasses ration, all the animals received chopped hay and slice mangels. The dose of molasses was in the ratio of 18 pounds per ton of live weight. Excepting the potato pulp all the animals took fairly to the preparations. The action of the molasses with turf powder and palm seeds was not satisfactory (We should think not) ; except when fed with molasses and sliced mangels, all the cattle diminished a little in weight. *The barley compound induced a greater richness of milk.* No increase took place in the sugar of milk, nor was any taste of a disagreeable nature imparted to the milk or butter, neither did the mixture in any way affect cows in calf, or near calving, or after calving.

AGRICULTURAL TEXT BOOKS

By Professor Craig, Cornell University.

The best knowledge of farming consists in knowing the fundamental principles—the why—and then adapting farm practice to the varying conditions. A writer on this subject says: “In years gone by, when I was graduating at the red school-house, we had a teacher who insisted that we should follow the rule so and so, and that would give the answer. Another writer, we had a teacher who taught principles, and the philosophy of principles, thoroughly, so that the older pupils were almost able to make their own rules; and that was the time that the arithmetic class went through the “Rule of three,” which was the most daring bit of mathematical exploration that ever occurred in the history of the school.”

Our text books have dealt too much with empirical rules and too little with the whys and wherefores. Successful farming cannot be carried on by any set of recipes. These remarks lead me to notice two books recently published which are of a character suited to the needs of the agricultural student of today, and by agricultural student I mean every farmer of the country, for such he should be.

1, *The Soil*, by F. H. King, Professor of Agricultural Physics, university of Wisconsin; published by MacMillan Company, New-York, 300 pages illustrated; price 75 cents. The subject matter is divided into 12 chapters which are preceded by a 20 page introduction dealing with the phenomena of nature. This introduction is worth the price of the book in giving a clear idea of the function of nature's forces as the sunshine, the atmosphere, the water, the living forms, the conservation of energy, etc. The soil is treated chiefly from its physical aspect and the reader gains a clear concept of the underlying principles of tillage. This book prepares the reader for the next;

The Fertility of the Land, by I. P. Roberts, Professor of agriculture of Cornell University, MacMillan & Co., 420 pages, profusely illustrated. Professor Roberts, in dedicating the book to the young farmers of America, comes very close to the farm youth in the following paragraph: “I am well acquainted with you, all though you are not acquainted with me; and being older than you are, I cannot for bear entering into a little familiar chat. I know your toils, your sorrows and your discouragements; your aspirations, hopes and joys, etc. I know how hot it is in August, under the peak of the flat-roofed barn, how large the forkfuls are that the stalwart pitcher thrusts into the only hole where light and air can enter. I know how high the thistles grow, and how far the rows of corn stretch out.” In short, Professor Roberts speaks from the stand point of the practical farmer as well as the scientific investigator. Farm implements, farm manures, chemical manures, and the various farm practices are discussed. These two books mark an epoch in the evolution of literature bearing upon the progress of agriculture.

MILK AND ITS PRODUCTS

By H. H. Wing, assistant-professor of Dairy Husbandry in Cornell University, published by The MacMullan Co'y, New-York. 275 pages. Illustrated. Reprint Feby. 1898.

This is a treatise upon the nature and qualities of dairy-milk and the manufactures of butter and cheese. Published first in 1897, it has been corrected and reprint to meet the public demand. The other says that “the revolution in dairy practice brought about by the introduction of the centrifugal cream separator and the Babcock test for fat, and by a more definite knowledge regarding the various fermentations that so greatly influence milk and the manufacture of its products, has seemed to demand the publication of a small handbook that shall give to the dairyman, and particularly to the dairy student, in simple, and concise form, the principles underlying dairy-practice. In attempting this, I have had largely in view the needs of my own students, while still keeping in mind the general dairyman.” The book is divided into 15 chapters, each one representing a specific phase

of the subject. The discussion of the "Ferments and fermentation of milk and their control" is new and valuable. The various methods of determining the butter fat content of milk are clearly described. On the subject of cheese the author is particularly at home.

The appendix to the volume is made up of a compilation of useful rules and tests that are of great service to the butter and cheese-maker.

The letter press and paper are excellent and the illustrations apt.

JOHN CRAIG.

Household Matters.

CONDUCTED BY MRS. JENNER FUST.

Children's Bonnets.

The little children look charming in these hot days in their dear little sun bonnets, so fashionable now, just now they are seen in all their freshness of various colours, pink, green, cream, and white, the latter colour is chosen as a rule for the very little ones, and the brighter colours for children of any age who can run about.

I saw a little girl the other day about three year's old, who looked charming in a pink bonnet, white dress, and white boots, and she seemed quite conscious of the sweet little picture she made, waiting to be lifted over the street crossing.

The great charm of these bonnets is, that a day in the laundry will make them look as fresh as ever, provided they are made of washing material.

Golf Bonnets.

This old fashioned bonnet is having a great revival just now, and is spoken of as the Golf Bonnet.

The most fashionable people are to be seen in a bonnet to match each shirt waist in colour.

They are made in various ways, and are worn tied under the chin; or the strings fly down the back, at the will of the wearer.

The girl of to-day will soon find out, and wear it in the way most becoming to herself.

It bids fair also to be worn in the country for bicycling, and on many other occasions, and as it is so very becoming to a pretty face, let us hope that such a very sensible revival of a very old friend has come to stay.

Sweets for children.

A child's great desire for sugar is a natural one, and one that should be gratified in moderation. A celebrated American lady doctor says:—Sugars play an important rôle in furnishing energy to the body, and since no one develops more energy than an active child, his craving for sweets furnishes an indication of a positive requirement of nature. Give him sugar, then, by all means, but choose the form in which you bestow it. Sweeten the fresh and stewed fruit that should form part of his daily diet, give him jam or marmalade with his bread and butter, supply him with simple desserts, bread, rice and tapioca puddings, junket, apple-sauce, baked apples, custards, occasionally ice-cream: Let him have one or two pieces of pure simple candy once in a while, directly after meals, and nearly all fruits except pine-apples and bananas. The fibre of the former is hard to digest, and the banana, which is so often given to young children, is very bad for them. Exclude from his bill of fare pastry, rich cake, hot bread, and all fried foods, nuts, and cheese. He will not miss them any more than the pickles, sauces, condiments, and wines he has never been allowed to taste. If you have any regard for his future nervous condition do not give him tea or coffee until he has his full growth.

Sailors suits for little girls

Until a girl gets quite beyond being a little girl sailor frocks are in style, and exceedingly becoming and useful they are. This season they are shown in unparalleled variety, and of a capital cut. They are made up in the cloths and serges and are brightened by the collars of silk. Some have bright red silk with hem-stitching, others have collars and sashes of bright plaid or Roman ribbon—all are attractive and exceedingly smart. Then in the piqué and duck there are a great many—all made on the one plan—with the gored skirt and the sailor blouse-waist. The wash materials do not have the silk collars, but have, instead, the coloured linen or duck made in much the same shape. They are all effective, and almost always becoming.

Make your own toilet washes

From a French magazine I cull the following directions whereby any lady can manufacture her own toilet washes. These washes are made by bottling any flower which may be selected in alcohol and water, equal weight in blossom and alcohol may be taken, say, for instance, a quarter of a pound of each and to these must be added one pint of filtered water. Well shake the bottle every day. Some ladies filter the whole after a time, but this is really not necessary for simple toilet use. Violets, lavender, roses, carnations, pinks, sweet briar, apple blossom may all be made into toilet water, and are said to be beneficial to the skin and nerves. Lemon peel and orange peel, both of which are so soothing to the nerves and exhilarating at the same time, may be used in the same way. One drop of musk may be added to the water to fix the perfume, and also to increase its tonic qualities.

Ironing Hints

When ironing ladies' shirt-waists turn the sleeves on the wrong side, and leave them until the rest of the waist is ironed. Then turn and iron them last. Coloured prints should be ironed on the wrong side; embroideries the same, and over a thick flannel. All ironed clothes should be hung on the clothes-horse until perfectly dry. The ironing-table should be longer than it is wide; the top covered with two thicknesses of blanket, pinned perfectly smooth round the corners; and over this a piece of unbleached calico, fastened tightly. On your right side have the ironing stand, on a small board or a heavy piece of brown paper, on the left a tiny bit of wax; beyond the iron, and on the right side, a saucer of water with a piece of soft muslin or linen, so that you may rub off any little piece of starch or a speck that you may find. If the irons have been badly taken care of they may be made smooth by rubbing them on powdered Bath-brick, (1) then passing them over a piece of soap, and dusting them thoroughly before proceeding to iron.

Japanese floor polish

Here is an excellent floor polish, the recipe for which comes from Japan: To a pint of linseed oil add a pint of strong cold tea, 2 ounces of spirits of salts and the white of two eggs. Mix thoroughly and pour into a large bottle. Shake the bottle well before applying the polish. Pour half a teaspoonful on a mop or pad of old soft silk and rub the wood with it, following up the grain. Polish with an old silk handkerchief. The result will compensate for the tedious and careful labor necessary.

The Poultry Yard.

(Continued)

If farmers knew how much benefit chickens are to grass-fields and orchards they would take much pains to have families scattered about the farm. As an illustration of this he cites the case that came to his notice in England during the last summer. A gentleman who did not own much land about his house paid a neighboring farmer two

(1) Bath is the name of the town near which the oolitic sand the brick is made of is found. Ed.

pounds (\$10) a year for the privilege of allowing two or three hundred chickens to run over an adjoining field. The farmer, was rather loath to let the privilege at first, some two years ago, but now he has come to see that the chickens are of great benefit to the land, by scattering their droppings over it and destroying great quantities of injurious insects, worms, and grubs and he tells the gentleman he may let his chickens run there for nothing; to be exact, he says "he could better afford to pay for having the chickens run there than have them kept off the land." The gentleman however says he prefers to pay the ten dollars a year which secures the absolute right to his chickens ranging the field; and then there is no opportunity for any disputes arising. It is remarkable that farmers do not see the benefits which would accrue from this colonizing of the pullets about the fields after the grass is cut. The pullets would destroy immense numbers of injurious insects grub, and worms which now prey upon the crops; would enrich the ground by their droppings scattered far and wide, and last, but not least, would grow much faster, larger, and be more vigorous in health. To have pullets mature promptly, and then lay when eggs bring forty cents a dozen, they must have a chance to grow and they get that chance by being given free range in the grass fields, in an orchard protected from the worrying of the pesky cockerels.

Another mistake is: Not cleaning out the fowl house; X says he has visited, as I did, farms where the fowl house or pen had not been cleaned out for years. He called on a farmer who had made an attempt at poultry-house-building, putting up a two pen house with liberal yards adjoining. Fowls had been housed in it winter and summer for two or three years, never once had the earth-floor been cleaned off and removed, never a drop of whitewash had been used on the walls, nest boxes, etc., and the house was saturated with the odor of the accumulated filth.

Being aware of the rich manure that the fowls make, the farmer has cleaned that out once a year, in spring, when the manure was wanted and that is absolutely all the cleaning out that house has had for three years. Is it any wonder, he asks, that this farmer's hens do not lay and pullets do not grow? About seventy-five hens, pullets, and cockerels were confined in that two pen house and yards during June, July and August. Pullets could not possibly grow under such a handicap. "I asked, says this farmer, why he did not clean out half a dozen cartloads of the sand floor of the houses cart in fresh sand clean up and whitewash the walls, roosts nests etc. He said he had been intending to, but was too busy, could not find the time very well; the other farm work had given him all he could do. That answer is representative of the attitude of the average farmer towards his fowls.

The "other farm work" takes precedence, so long as there is anything else to do; the fowl-houses can be let go, and the fowls can be neglected. Is it any wonder that poultry keeping does not pay, no how? This farmer said his hens laid well the first winter they were housed in these pens, laid less well the second winter; and the last winter he hardly got an egg all the winter; he fed them well, too. Can we blame the fowls for not laying, compelled to live in such foul quarters as those.

Some readers may ask how that house could have been kept clean and sweet, kept free from fowl odors. By simply cleaning up the droppings two or three times a week and cleaning out the houses thoroughly once a year, that is all that we do on our farm, and our poultry houses are as free from "odors," are as fresh, clean and sweet as a new house. We have houses which have been in constant use for eight or ten years, and are as sweet and clear to-day as though newly built. We don't take extraordinary pains to keep them clean. We clean them out thoroughly once a year, carting off about three inches of the top of the sand-gravel floor and carting in as much fresh sand-gravel. We sweep down the walls and whitewash thoroughly, whitewash nest boxes, roosts, roost-platforms, etc. and then move in the pullets from the fields. Those pullets, moved into such fresh clean pen, are not poisoned by accumulated foulness of several generations of fowls. The pens are clean and sweet, and the pullets begin shelling out the eggs, which are now (last of October) selling at the store at thirty-five cents a dozen, and before Thanksgiving will be forty or forty-two cents a dozen. There is no magic, nothing obscure or difficult about this; it is simple common sense cleanliness.

S. J. ANDRES.

The Farm.

STATE OF THE CROPS

To the Editor of the *Journal of Agriculture* :

Dear Sir,

Wheat.—Whatever was sown early is looking well. Some farmers may have sown later this year on account of the great rise in price of this cereal, but in recent years, late sown grain has not done so well.

Oats.—Are looking well also, though I have heard of some fields that had to be resown on account of the grub and wire worm having destroyed them, and some others are looking a little measly. I think in nearly all these cases it is on spring ploughing, so far I have not noticed it on any soil that I knew to be fall ploughed.

Barley.—Not much sown, but looking fairly well for the season.

Pease are looking fine. A good deal has been sown I fancy, after having visited many localities.

Corn.—A large average has been put in and is still being put in. Many, last year, lost the first seeding on account of the cold, damp spring. This year has been much earlier, but some farmers were afraid and held back; last week the corn grew very fast.

Potatoes.—The high price of tubers has encouraged many to plant far more potatoes this year than usual. Last year they were so cheap that not very many planted an extra quantity and the crop was very light. They are 3 or 4 times dearer than last year, so of course every one will plant more this year, the potato beetles seem to be watching already for their prey, in great number, in a few I had in our garden, while going through them, on Saturday, I could see plenty of beetles.

Other root crops are coming up nicely and growing well for the time of the year.

Hay is looking excellent; a fine appearance; the showers of rain have not been too heavy and still about enough to make things grow nicely. We used to have a saying long ago: "a leaky May makes great hay;" May has been leaking pretty often lately, so the hay has grown immensely during the past fortnight; not much has been winter killed.

Clover is an excellent crop this year. Last year, in this province we had very little, while this year it is just the reverse.

Fruit.—All kinds of fruit seem to be abundant, if blossoms prove anything we are going to have an extra crop, although it is rather early to say very much about it. Currants, gooseberries, etc., are doing well, the latter are about half grown.

Pastures are very good. There ought to be an exceedingly large make of both butter and cheese for the month of June. Prices are low, perhaps a blessing in disguise as the low price will increase the consumption and with no strikes in Great-Britain at present, the market for both articles should be in a healthy shape before very long. At present, butter is paying fully better than cheese. I hope every farmer took the advice tendered him some time ago, and prepared some green-fodder to cut by and by when the pastures begin to dry up. About that time, I look for better prices for both butter and cheese. Cheer up! They say that the darkest hour of the 24 is just before the dawn. We are on the dawn of better prices, so keep up your courage and you will be both pleased with and surprised at the results at the close of the year.

Chateauguay, 30 May, 1898.

PETER MACFARLANE.

The Failure of an Agricultural College

From advices to hand we hear that a well known Agricultural College in Australi has been closed. The reason given being the drought, and the falling off in the number of students, and possibly these reasons may seem sufficient to those who take no interest in agricultural education, but to interested people they are far from satisfactory.

One would think that in a dry season or in fact in any abnormal season, an educational establishment such as Compton for instance, should prove of most value, that is providing of course it is run on proper lines. The work carried out there, should be such as to indicate clearly and forcibly to farmers the best and most profitable crops to grow, and the proper systems of cultivation to adopt in order to secure the best results. Experiments of many different kinds should be undertaken, and results carefully noted so as to furnish guides for future operations.

The closing of this Australian College just after a succession of dry seasons is, to say the least, an event which must be injurious to the district in which the institution is situated, and will give the impression that that part at any rate of the province of Victoria is unfit for permanent settlement, an such an idea taking root, no matter how erroneous it may be, the effect must be to depreciate values of real estate everywhere throughout the district.

Scientific instruction is indispensable in connection with agriculture, if the industry is to be lifted out of the rut of stagnation, and placed upon the wheels of progress. In many of the civilized countries of the world large sums of money are set a-part for technical education of all kinds, and agriculture almost invariably receives its share.

Here in Canada, and elsewhere, encouragement to agricultural education is liberally given and the rural population immensely benefited thereby.

There is no doubt but that the closing of this college will strike a blow at teaching institutions of this kind in Australia, from which they will be slow to recover, and it will have the effect of restricting the desire that is now evinced by so many young men to go on the land.

If an agricultural college, receiving its share of revenue from a large endowment of land, cannot keep going, and must close its door to escape serious loss, how is it possible for the ordinary farmer in a dry or abnormal season to make a living? The answer, of course, may be that the farmer knows his business, while those who are responsible for the management of agricultural colleges do not, and in many cases such as reply would not be far from the truth.

The practice seems to be with many of these institutions, that the management is rested in some one or other in the Capital; but the attempt to manage a college of this or any other kind of college by forwarding mandatory instructions to the Principal in connection with the smallest details is absurd, and bound to end in disaster. The Principal of an agricultural college is either fit for his position, or he is not. If he is fit, he should be given a free hand, as he knows more about how an institution of this kind should be managed than a body of men, who have never had any special training in work of this kind, and who also labor under the disqualification of not being on the spot to see what is being done or what is required to be done. If the Principal is not fit for the position, he should be got rid of and someone better qualified employed.

In justice to other agricultural colleges and their Principals, it is only fair to point out to those interested in agricultural education that the closing of this above mentioned college can be directly traced to its having been managed of late by a council operating from a distance, the upshot being that the college, which has cost many thousands of dollars to establish and maintain, is now closed. The action decided upon will depreciate the value of land in the entire district; it will be a serious blow to the cause of agricultural education everywhere—for the facts of management may not be known to all—more especially in Victoria (Australia) as there will be no possibility of ever again getting the colleges filled with students, and it certainly seems to us a distinct breach of faith with the public who have provided for agricultural education, and with the young men the college authorities undertook to instruct.

W. R. GILBERT.



Orchard and Garden.

(CONDUCTED BY MR. GEO. MOORE.)

ANOTHER ORCHARD PEST

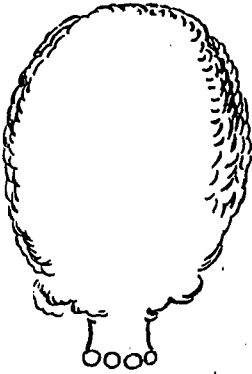


Fig. 1.

The Fringed-wing apple-bud moth. According to an article in the *Canadian Entomologist* by professor Stedman of the University of Missouri, our fruit growers will have to look out for yet another enemy to their fruit trees. At first the Professor supposed the insect to be the Eastern bud-moth which had caused a vast amount of damage in the orchards of a friend in his neighbourhood; but, upon close inspection, he discovered it to be a new species.

One evil connected with this insect is that it is very small, hence may do considerable mischief before it is noticed.

The egg is about a quarter of an inch long, of light yellow color, and of curious formation: Fig. 1, Egg of the Fringed-winged apple-bud moth very much enlarged.

The larva or grub is so small when hatched as to be

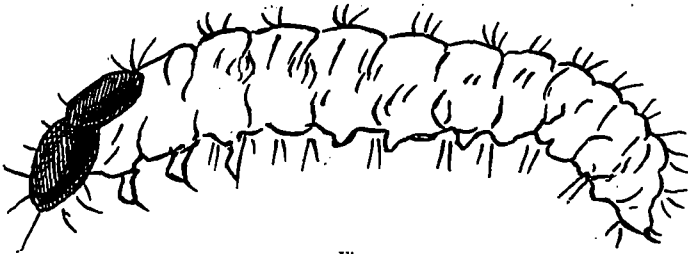


Fig. 2.



Fig. 3.

almost imperceptible; namely, one twenty-fifth of an inch in length; as it grows, the body becomes of a pale greenish color, and is therefore more difficult of detection. Fig 2, Larva or grub of Fringed-wing apple-bud moth, greatly magnified; the full grown larva is about one quarter of an inch in length, and then becomes more conspicuous on account of the greater brightness of its light green body and glossy shielded black head.

The pupa stage, when the larva or grub is changed into a moth, is passed in a silken cocoon.

Fig. 3 is the moth about natural size, and Fig. 4 the same greatly enlarged.

The scientific description of the insect is not necessary further, except so far as it enables the fruit grower to be on the look out for this pest which, in the case mentioned by Professor Stedman, had devastated

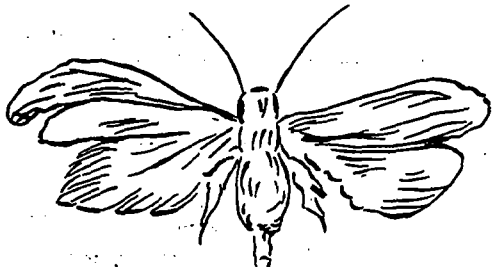


Fig. 4.

an orchard of sixty acres, destroying what would have been a heavy crop of fruit and a large percentage of the young leaves, thus inflicting a permanent injury upon the trees.

One of the most significant facts stated is, that the moth had its own way, because the proprietor of the orchard attached, up to that time, did not believe in spraying.

While in most commercial orchards the insect would not have multiplied so rapidly, if at all, because of the spraying for the preventive or destruction of others, in this case it had no check.

Who will not spray after such warnings and examples as these.

SPRAYING FORMULÆ.

Grape vine.—For *anthracnose*; sulphate of iron and sulphuric acid solution in early spring; repeat after a few days.

Black rot: Bordeaux mixture, as soon as leaves are fully expanded, again after the fruit is set, and at intervals of two or three weeks until fruit is nearly grown, then, if necessary, copper carbonate.

Downy or powdery mildew; apply as for *black rot*.

Ripe rot, as above.

Steely bug: As buds are swelling, Paris green; repeat after about two weeks.

Currant leaf blights.—If injury appears before the fruit is gathered use ammoniacal copper carbonate, and after Bordeaux mixture (very freely).

Worm: When leaves are nearly expanded, Paris green; after Hellebore powder.

Gooseberry.—*Mildew* may be completely controlled by the persistent use of Bordeaux mixture, and the worm destroyed by the same means as for currants.

Raspberry and Blackberry.—*Anthracnose*; before buds break, copper sulphate solution; Bordeaux mixture, during growing season every two or three weeks; cut out badly infested canes; clear off old patch and make a new one frequently.

Orange rust; remove and destroy affected plants. *Saw fly*; kerosene emulsion, but no treatment is quite satisfactory so far.

Strawberry leaf blight.—Bordeaux mixture as soon as growth commences; repeat when fruit is setting; during fruiting season use ammoniacal copper carbonate; after fruiting, or plants not in bearing, Bordeaux mixture; renew the beds frequently. *Saw fly*, as in raspberries.

The Romaine Automatic Agricultural Machine

A trial of this machine was made on the Exhibition grounds, Montreal, on Saturday, May 7th, which was witnessed by a number of Senators, M. P's., and practical farmers from the North-West, and from our own Province.

The machine performed all that was claimed for it as regards breaking and pulverising the land from a hard sod into a well prepared seed-bed at one operation, and its work was applauded by many extensive landed proprietors present.

It was propelled, on this occasion, by electric power, but will be provided with a gasoline engine for work in the country, and Mr A. A. Barnhart, the manager, explained that the engine would be much lighter—which, as it is a part of the machine is a great consideration.—The mechanism is strong and simple, and can be controlled, as regards the depth to which the soil is stirred, and guiding to keep it straight, or to turn round in any direction, by one man.

The general opinion amongst the spectators was that for breaking up land, free from large stones or other obstruction, as on the Prairie, the machine would be most useful.

GEO. MOORE.

Peace hath her Victories no less than War

There is glory to be gained in other fields beside the field of battle. A man can be a hero and never see a battle. Any one who does his duty in the state of life to which he is

called, manfully, and determinedly, is heroic. He may not be called upon to brave the dangers of the deep, or "Seek the bubble reputation e'en at the cannons mouth," but his duty in fighting the "battle of life" requires courage and effort, and he may have learned the glory of having helped to ameliorate the condition of his race without having engaged in mortal combat with any of his fellow men.

Such opportunities are within the grasp of the young men of Canada at the present time: while our neighbours across the line have engage in a war in which no doubt many valuable lives will be sacrificed, whatever the result may be, and in which the flower of their young men will participate from a variety of motives: we, happily, so far at least, have no inducements to leave our homes.

The arts of peace are open to us, above all, agriculture; thousands of broad acres, many of them already fertile, and others which can be made so by intelligent and well directed cultivation, are beckoning to us, as it were, to come and gather the riches contained in their bosoms.

There are also thousands of men flocking to our cities, where they are earning a more or less precarious living, who could build up for themselves and their families comfortable homesteads in a few years. Others are rushing off to the Klondike, in the too frequently vain hope of becoming rich, when there is more real wealth, because accompanied by health and happiness, in a well tilled farm and a herd of good, and properly cared for cows, than there is in, what may be called, a rich gold mine.

And the country at large is helped more by steady, plodding, agricultural advancement than by spasmodic additions to its wealth in the finding of new deposits of the precious metal, or in any aggrandisement it may receive from the sword. Ah for the time when the swords shall be bent into plough-shares and the spears into pruning hooks; when men shall learn that there is *glory and honor* in *fighting* enemies that destroy our crops, in achieving victories over intricate problems of *feeding* cattle to the best advantage; in manuring our land and cultivating it so as to secure the best results at the least possible outlay.

The Breeder and Grazier.

THE COMPOSITION OF THE ANIMAL BODY.

The chemical elements, carbon hydrogen, oxygen, nitrogen, sulphur, and phosphorus, are those that enter into the composition of the animal body, together with iron, magnesium, potassium, and calcium. Again may be added chlorine and sodium, the elements composing common salt, and also a small percentage of fluorine found in the teeth. The above mentioned chemical elements are recognised as occurring in plants; and, as a stock feed on plants, this is not surprising.

There is, however, an important distinction in the details of nutrition of plants and of animals.

Plants are capable of building up the complex organic compounds out of the crude materials; such as carbonic acid, ammonia, and the simple saline matters, that compose them.

Animals are incapable of this work. On the other hand they feed up vegetable productions and ultimately reduce these to water, carbonic acid, and urea (waste products of the animal body) rejected by the blood at the lungs, the skin and the kidneys. There is, thus, a kind of balance between plants and animals. Plants build up bodies of complex composition; animals reduce these to simple forms; plants consume carbonic acid, animals eject it.

In cutting up the body of an animal, bone, flesh, fat, and cartilage (or gristle) and connective tissue are the objects that obviously catch one's eye. If we enquire in the composition of these substances, it will become evident that the animal supplied itself with the chemical elements they are made up of in its food. Were this not so, the nutrition of the animal would be imperfect.

Bone.—A very simple experiment will exhibit the composition of bone.

1. Take a bone from a ham, or a leg of mutton, or even so small as that of a rabbit, and place it in a drain pipe just big enough to hold it, stopping up the ends of the pipe with clay, so that no air can enter. Place the whole in a fire that will maintain it a red heat for several hours. On examination of the bone when cool, it will be found to be so brittle as to be easily crushed to a powder and to have lost weight. This powder consists almost entirely of phosphate, carbonate of lime, which, among the lot, contain the chemical elements calcium, phosphorus, carbon and oxygen, all of which are therefore necessary in the food.

2. Take a similar bone in a basin and pour in dilute hydrochloric acid. After several days, the bone will be found to have lost its rigidity and much of its weight, and can, therefore, be easily bent.

The nature of this soft, flexible material which remains can be demonstrated by boiling it for a long time in water, when it will yield a large quantity of *gelatin*, which is a nitrogenous compound.

These experiments prove that bone consists of a framework of animal matter, together with salts of lime. By burning, the animal matter is removed; by treating with acid, the mineral substance is dissolved.

Connective tissue, like bone, yields gelatin as the result of very long boiling in water. As the water cools, it forms a jelly.

Cartilage, or gristle, similarly boiled, yields what is known as *chondrin* which is not unlike gelatin.

The composition of gelatin and chondrin is shown below :

	Percentage comp. of <i>Gelatin</i> and <i>Chondrin</i> .	
Carbon	50.76	47.73
Oxygen	23.21	31.04
Nitrogen	18.32	13.87
Hydrogen.....	7.15	6.76
Sulphur.....	.56	.60
	100.00	100.00

Flesh owes its red appearance partly to the blood which it contains, and partly to the natural colour of the muscular fibres of which it is made up.

When lean meat is "boiled to rags," the envelopes of connective tissue, which surround not only the entire muscles but the individual fibres of which they are built up, are destroyed. The separate fibres can be taken out with a pin.

The chief ingredient of muscular fibre is *myosin*, a nitrogenous substance, which forms a very large proportion of the compound, *syntonin*, which is obtained from lean meat by the use of dilute acids.

Minute quantities of other substances may be obtained from the muscles, the best known probably being *kreatin*, a nitrogenous, crystalline substance which is said to form most of the nitrogenous waste of living muscle, leaving the tissue before its conversion into *urine*. Muscle contains 75 o/10 of water so that 4 lbs of lean meat will yield 3 lbs of water.

Fat.—This material, as it is accumulated in the animal body, is made up of oily, fatty materials stored up in minute cells which are bound together by a network of connective tissue. Expose a piece of suet before the fire, and it will be seen that the fat drips and trickles off while the skinny material, or connective tissue, is left hanging.

The common fats found in the animal body are stearin, palmitin, and olein. The first is abundant in hard fats, such as mutton fat, and is used for making candles. The second occurs in palm oil, and olein is found in olive oil in large quantities.

These fats are found also in large quantities in milk.

A. H. PLUMMER,

Model-Farm, Compton Que.

May, 29, 1898.

THE SUPERIORITY OF CANADIAN HOGS

For some years past Canadian bacon manufacturers have been steadily improving the quality of their output, until now, on the English market, Canadian sides and Canadian ham have a well established reputation, and no matter how prices fluctuate our sides and hams always command very near the topmost price. For example, in the latest reports from London, Canadian hams were bringing from 64 shillings down to 57 shillings the hundred weight, whilst the nearest Americans in price were bringing only from 54 shillings down to 43 shillings the hundred weight. This means that Canadian hams are worth in the English market from ten to fourteen shillings (\$2.40 to \$3.36) more per hundred weight (112 lbs.) than corresponding American hams. The Canadian farmer has been getting the benefit of this. During the whole of the past season choice hogs for bacon or hams have been bringing in the Toronto market about \$2 a hundred pounds live weight more than the best hogs have brought in the Chicago market. The excuse of the American farmer is that it would never pay him to go to the trouble to feed hogs the way the Canadian farmer feeds them. The Canadian farmer is a mixed farmer, and keeps but a few hogs. But the American farmer likes to do things on a large scale and to do his work easily. He therefore likes to have a "hog farm," and to feed his big drove of easily fattening hogs on nothing but corn, although corn will never by itself make bacon suitable to the English market. The Canadian farmer, on the contrary, is satisfied with one or two litters, but these he personally attends to, and feeds them a mixed diet—skim-milk, roots, clover, garden refuse, with some peas and coarse grain—and keeps them supplied with the cleanest bedding and the purest of drinking water. The American farmer, however, has to fight with a falling market, a lowering reputation and the cholera.

FARMING.

KEEP MORE SHEEP.

In FARMING two weeks ago we spoke of some of the advantages that would accrue to the Canadian farmer if he kept more sheep. What we are contending for is that every farmer ought to keep some sheep; say twenty sheep on a hundred-acre farm. This number could be easily kept without in any way interfering with the rotation established on the farm, or causing any additional help to be hired; and without necessitating any different crops to be grown other than would be grown in any case, or the erection of any farm buildings other than which are usually found.

These twenty sheep, if purchased as lambs, would in one year, by the wool they would produce, pay for their own keep and the keep of their lambs; and the lambs they would produce would more than pay for their original cost. Every subsequent year there would be the profit on the sale of the lambs obtained from them. Finally, when it would be necessary to replace an old ewe by a young lamb, the carcass of the ewe would be worth to the farmer the cost to him of the lamb with which he supplied her place. There is thus to the farmer who keeps these twenty sheep an annual profit of the value of the lambs which he produces and sells. The twenty sheep, we are told by practical sheep raisers, may be safely reckoned upon to produce at least twenty-five lambs yearly.

There is not only this direct profit, but there is also an indirect profit. The twenty sheep upon a hundred-acre farm would do a great deal towards keeping the farm clear of weeds. Sheep will eat weeds which other stock will not eat. They will go into fence corners and keep them clean when other stock will pass all such places by. They will find food and act scavengers in and about stone-heaps, stump roots, etc., which cows and horses do not care to go near, and which cannot be touched by the plow. They will pick up a good living on pastures that cattle have finished. Finally, they will leave the best of manure on every part of the land they cover.

Another point is that sheep will do all this at no expense of money to the farmer who

owns them, and at little expenditure of labor. In winter sheep need protection only from the rain and from draughts. Their quarters must be kept dry under foot, but otherwise their winter housing and keeping are very simple matters. They will thrive well even on pea-straw and nothing else; through if a few peas be left in the straw they will certainly do all the better.

We Canadians are exceptionally well favored in our sheep-breeding. We have no disease in our flocks, nor is there any danger of disease. Our climate is specially adapted to profitable sheep-raising. We cannot, it is true, keep our sheep out-of-doors all winter; but we are compensated for that deprivation by being able to raise sheep that are hardy, vigorous, and free from disease, and that produce the best of mutton and the most desirable of wools. We are, also, specially favored in our markets. We not only have, as we saw in FARMING two weeks ago, our own market and the British market, but we have also the American market; and this latter market, despite the duty we have to pay to get there, is by no means an unimportant one.

There is one branch of profitable sheep-breeding which our proximity to the American market gives us an especial advantage in; that is, the raising of ram-lamb for use on the western ranges. The western American ranchers frequently have flocks of from 5,000 to 10,000 ewes each. The rams used on these flocks are rarely pure bred; what is used are high bred grades of any good mutton and wool producing breed—the breeds most commonly used being our own standard breeds, the Cotswold, Leicester, Shropshire, Oxford, and Southdown. When a rancher wants to buy rams at all, he will buy from one hundred to three hundred at a time. He will, indeed, rarely buy less than 150. He comes to a district where sheep are bred, and going about, picks up what he wants. Of course he likes to get his lambs (or yearlings as the case may be) as near together as possible, so as to save expense. And he likes to get them of as nearly uniform type as possible.

Now, here is a branch of the business that we in Canada have not got worked up, or taken advantage of. But that the trade is possible and desirable the experience we have already had amply shows. Not long ago to our knowledge, a western rancher came to an Ontario town and picked up 130 ram lambs (all grades), the selection in this case being principally Cotswolds, Leicesters, and Shropshires. We have heard of other similar purchases. Similar supplies, too, are needed for our own Northwest sheep ranches, which in no long time will be both numerous and extensive.

What is wanted are more sheep and better sheep. The ranchman who is picking up rams for his flock of five or ten thousand ewes; the shipper who is picking up car loads for the English market; even the drover who is purchasing lambs for Buffalo; does not want to spend too much time or too much money in going about from place to place to get what he needs. He desires to make up his tale quickly and *is one locality*, so as to be able to ship from one railway point. Again, he wants good stock. If he is buying rams, none but the best grades will answer his purpose. If he is buying sheep or lambs for the English or Buffalo markets he wants to get them of the best mutton producing breeds, and well put up at that. And for the sheep-raiser to get the profit out of the business there should be got, the sheep must be of the sort that will produce both good wool and plenty of it. The time was when any sort of wool would sell, and when all wool would bring a good price. In those days any sheep that had a strip of wool along his back was a profitable one. But to day it is only the sheep that grows wool all over, and that, too, of good quality, that can be reckoned a profitable sheep.

The loss to Canadian farmers from their present indifference to sheep raising cannot be short of many hundreds of thousands of dollars every year. A farm of a hundred acres that sells less than twenty-five lamb a year is doing that much less than it ought to do, and could do. We know personally of one case where a man paid the entire purchase price of his farm, \$7,000, out of the sheep that he kept on his farm, without touching what he made from all his other stock, and from his grain, and roots, etc., and there are a good many similar instances.