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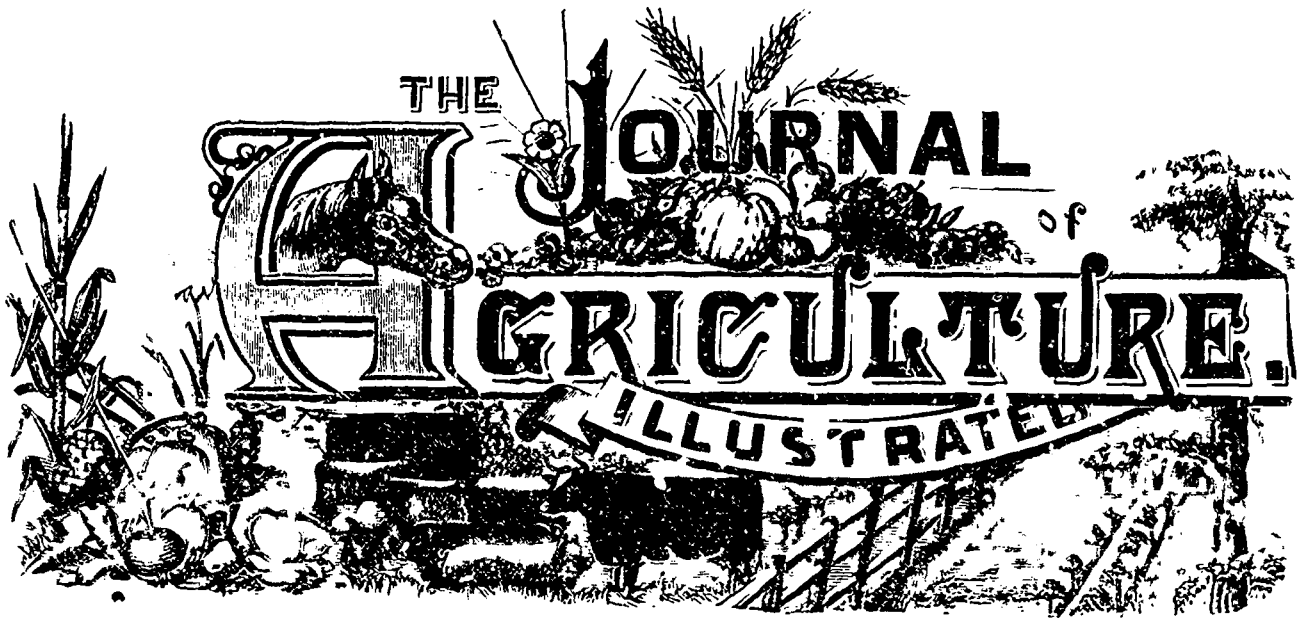
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SOREL, JAN. 29TH.

DE OMNIBUS REBUS.

We had a short talk the other day about carp and trout. We found that in ponds in a clayey soil the former of these was the more profitable fish of the two, the latter not thriving except where cold springs were available. Where carp thrive, eels will thrive too; and as a food this singular fish will be found, if properly cooked, far superior to the carp. The idea entertained by many, that eels are unwholesome is not founded on fact: beef becomes unwholesome if you eat too much of it. No one proposes that a meal should be composed entirely of eels, we should soon get tired of veal if we were to eat nothing else, and even the salmon would pall upon the palate, were we to dine off it alone.

Now, like all rich food, eels require to be eaten with a slightly acid sauce: vinegar or lemon-juice should always be present, and mustard not entirely absent. In my kitchen, which, though on a very tiny scale, is, I flatter myself, hard to beat, three ways of cooking the eel are practised: they are broiled, stewed, or fried. When eels are broiled, they should not be skinned, which saves a good deal of trouble, and preserves the flavour admirably.

A sharp fire is requisite for this as for every other sort of

broiling; the plates and dish should be hot; and the sauce scalding. Cut the eel in pieces about four inches long; pepper and salt them to taste, and turn them frequently until done. My broiling is always done on a coal-oil stove. The one in use was bought of Mr Fred. Cole, Notre-Dame Street, Montreal, in the year 1876, and is now as good as new. In places where gas cannot be had, this implement will be found of the greatest utility; it broils and stews better, even, than charcoal.

Eels, if you fry them, must be skinned, egged and bread-crumbed, and plunged into very hot fat, lard, or oil. Smearing a pan with butter and "sauté-ing" the fish is by no means the same thing. A handful of dried parsley and savory, with a very little thyme, mixed with the bread-crumbs, will be found a most appetising addition.

Stewing, however, is my favourite way of preparing the eel, and is thus carried out: skin, and slightly boil the eel in plain water to extract the fat; have ready a strong broth—what the French call *consomme*—made of beef-bones, to which add half a dozen cloves, a large onion, a clove of garlic—if the feminine part of your family will allow it; mine won't, I regret to say—a tiny shred of lemon-peel, not a particle of nutmeg, but two tomatoes, a small bunch of sweet herbs, and a table-spoonful of capers added towards the end of the operation, will be found to suit most palates. In this the eel is to be slowly stewed for about an hour; the sauce is simply the vehicle in which the eel is cooked with a good squeeze of lemon juice stirred in just before the eel is dished. Don't eat too much of it.

Having cooked our fish, we will now see how to grow and catch it. Eels like mud to *nuzzle* in, but the clearer and the more charged with lime the water is, the finer the the flavour of the fish. The river Test, in Hampshire, England, which flows out of the chalk hills, affords the finest flavoured eels in the world—superior, even, to those of the far-famed Lake Thrasymene.—Still, even in ponds eels do well, and, in my opinion, are well worth all the trouble they cost, which, after all, is very trifling.

Having secured a pond, natural or artificial, and all the

better if a stream, however small, runs through it, catch, or beg, or buy ten or twelve pair of eels and put them in the pond to breed. They will deposit their spawn in the mud or sand in April or May, and it will hatch out in September or October. Naturally, the eel is a fish of passage, and pays a visit to the sea every year, and the passing up a river of the young eels is a curious sight. On the banks of the Thames, this passage is called *eel-fare*, and it is calculated that from sixteen to eighteen hundred young eels, each about three inches long, pass a given point in the space of one minute of time. They only travel by day, and rest at night. I myself have seen them passing the locks at Sunbury, making the gates quite dark as they clamber over them; for nothing stops them, those who can't get on die, and the rest pass over their bodies (1).

Eels are very clean feeders; if possible, they like their food alive, and in all cases it should be fresh. Still, if they can't get live fish, frogs, or worms to eat, they will take what they can find, and are not too dainty to refuse the entrails of chickens, ducks, &c. They devour enormous quantities of spawn of all kinds, and in places like the Norfolk *Broads*, where roach, dace, and bream collect in vast numbers to spawn, you can hear the eels sucking away at the spawn in the weeds, gorging themselves to such an extent that they will lie motionless on their backs on the gravel with their bellies distended with food.

There are a good many ways of catching eels, but in ponds they are generally taken with the spear or on night-lines. The spear is formed of four broad blades, spread out like a fan and slightly overlapping each other, between which the eels get wedged and retained by slight teeth cut in the edge of the blades. The spears are mounted on long slender poles, to enable them to be thrust into the mud, where the spearer notices the tell-tale bubbles which announce the presence of his quarry.

The largest eel of which we have any account was one taken in the Medway at Rochester in Kent, weight, 34 lbs.: length 6 feet, and girth 25 inches! Stoddart, a well known Scotch writer on angling, relates that having set two trimmers for pike in a sluggish stream, when he went the next morning he found that both hooks had a fish on.

After trying for some time to land one of them without success, he was astonished to find that the same fish had gorged both baits, and still more astonished was he to find that the fish was an eel that turned the scale at twenty pounds! I should like to know the weight of the heaviest eels taken in the St. Lawrence: with *Maslinonge* (*Masqu'al-longé*?) of sixty pounds, there must be some monstrous eels in the river.

Subsoiling.—More disputes in the U. S. agricultural papers on the subject of deep-ploughing and subsoiling, particularly on heavy land! A simple question, it seems to me, decides the matter: Do you dig your garden five inches or ten inches deep?—and why? Because you manure it. Plough deep or subsoil for a manured crop and you won't be disappointed.

For heavy land, in particular, deep ploughing is absolutely necessary to the production of heavy crops. Shallow ploughing may be admissible in the case of a field that has had rape or any other green crop fed off by sheep, lest the droppings of the sheep be buried too deeply; but even in this case—a rare occurrence here—we must not forget that the roots of vegetables in general push themselves out in pursuit of nutri-

(1) *Eel-fare* is evidently from the old English, to *fare*, i. e. to travel. Cf. Spenser's *Faerie Queem*. "So forth he fareu, as now be-fell, on foot." Canto III, book 2.

ment, and with an instinctive perseverance will pass over or through media which afford little or no food, in order to reach a medium in which they can luxuriate at will.

In some of our clay soils, a system of ploughing shallow, broad furrows is to be seen. I saw it in practice last summer at Richmond, after grass fed off, in the month of June, and I wondered how on earth they were ever going to get the land ready for turnips, as they intended. The truth is, that most of the ploughs used in the province will make no other sort of furrow, and the sooner they are thrown aside, the better for the farmers.

"There appears, in short," says Henry Stephens, in his *Book Of The Farm*, "every reason for inculcating deep ploughing, not only where existing circumstances admit of its adoption, but where its ultimate effects are likely to induce a gradual improvement of the soil and all its products; admitting always that a variation in depth is proper and necessary under the varying circumstances of crops and seasons."

Here, we have not horses enough for subsoiling: six at least are required for the job—two in the common plough and four in the subsoiler. But we could all manage a furrow of 8 x 11 inches, or even of 9 x 12 inches, for the fallow crops of roots or maize. For grain to succeed the fallow crops, 6 x 9 inches, and when the grass is turned up in its turn a furrow of 7 x 10 inches would complete the rotation. In my own part of England, in the county of Kent, the fallow gets its first ploughing of twelve inches deep in November, and the clover-leys are turned over nine inches deep for wheat. It takes four heavy horses to work at the above depths, but any alteration of the practice has always been followed by disastrous consequences; as many good Scotch farmers, who, coming from the light hazel loams of the border counties, introduced pair-horse ploughs on our soils, can bear witness: one and all had to discard their system and take to our old Kentish turn-wrest ploughs, with its four horses and two men!

Superphosphate.—We send our *Apatite* to England, where it is ground up, dissolved in sulphuric acid, and sold as superphosphate. It is not dear there, as the following advertisement will show:

Mark Finch & Co., Victoria Docks, London, E.

SUPERPHOSPHATES, containing 26 0/10 of soluble phosphate, £2.12.6 per ton (2240), free on rails here. We guarantee the analysis of all our manures; customers draw their own samples, when they receive the bulk, and if Dr. Voelcker, Mr. Bernard Dyer, or Mr. John Hughes, certifies that the sample is of less value than the money which has been paid for the manure, then we return the difference."

Now, £2.12.6 per gross ton equals \$11.60 per our ton; but, you will remark: the price of superphosphate you quoted in last month's journal was \$28 a ton! True enough, and the quality being considered, the difference is still more astounding, as the English manure contains 26 0/10 of soluble phosphate, and the Montreal manure only 23 0/10 of phosphates of different kinds, soluble, reverted, and insoluble, the word *available* being the term used to qualify the matter. Thus, in point of fact, even supposing the 23 0/10 of available phosphate to be all soluble, the manure in question would only fetch in England \$10.26 per ton of 2000 lbs! And so we have to pay for our home-grown and home-made article nearly three times as much as the same article costs in England, after the expenses of the voyage, &c., have been incurred. I really cannot recommend my friends to use artificial manures at this rate.

And now let us see what a good practical artificial manure, fully equal in practical utility to any advertised mixture

ought to cost. Mind this is calculated to produce a full crop of mangels or turnips without any farm yard dung :

Ashes 250 lbs. at 50c. per 100 lbs. =	\$1.25
Plaster 200 lbs. at 37½ per 100 lbs. =	.75
Sulph. ammonia 100 lbs. at \$3 00 per 100 lbs.	= 3 00
Spent char 200 lbs. at 75 cents per 100 lbs.....	= 1.50
	\$6.50

Spent char, as we saw last month, contains 74 0/10 of phosphate of lime; whereas, bones only contain about 50 0/10: in this case we neglect the ammonia in the bones which is supplied by sulphate.

You can dissolve the spent char in acid, if you like, but it is not necessary, as has been proved by hundreds of experiments. Mr. Skaife tells me that "frequently, a very large quantity of spent char is turned out all at once, but, anyhow, I should think that forty or fifty tons could be had at any time somewhere in Montreal. Some time ago, we shipped over one thousand tons to New-York." Mr. Skaife, I hope, will let me hear from him again before the season for sowing roots is come. He recommends dissolving apatite in sulphuric acid, and therein he is quite right, for a crystalline form of phosphate like that is absolutely insoluble in the ground, unless so treated; whereas spent char, Carolina-rock phosphate, coprolites, &c., like bones, will yield up their phosphoric acid by degrees under the influence of the water charged with carbonic acid they will meet with in the land.

Sulphate of ammonia is now reduced to 3 cents a pound at the Montreal gas-works. It ought not to be more than 2½ cents, but we may use it at the former price. In England, where most of it goes, it is only worth about 2 cents a pound. —£10 per gross ton.

Sussex Cattle.—These were always useful beasts, even in my younger days. Great favourites with the butchers, on account of the quantity of inside fat they carried. Nobody, however, would have expected that they would have beaten all England in early maturity, as was the case at the last meeting of the Smithfield Club, where a Sussex yearling proved to have increased at the rate of but a very small fraction less than *three pounds a day* from the date of his birth!

Our Engravings.—A magnificent "Gobbler," designed, after life, by the well known artist, Harrison Weir. How well I remember the herd of Cambridgeshire turkeys at Duxford, from seven hundred to eight hundred in number! Every year one or more of the eighteen months old cocks ("roundabouts") used to weigh upwards of forty pounds without its feathers! I heard, by the bye, that a cock killed at Quebec for Xmas tipped the scale at 28 pounds.

Yorkshire Shorthorns—People have been asking me lately about the Yorkshires. They are a refined stamp of the old Teeswater cattle; hardy, prolific, immense milkers, and easily fattened when their time comes. Mr. Thomas Booth obtained his rudimentary stock from some of the best specimens of the breed; a dairy farmer, Mr. Broader, under my great grandfather, at Fairholme, appears to have possessed a herd of unusually fine cattle for that period. They were good dairy cattle, and great grazers when dry; somewhat loose in form, and steerish to look at, but of very robust constitution; qualities which their descendants still retain. Previously to the year 1790, Booth had bought some calves from these cows, and they had the honour of being the ancestresses of several illustrious families of shorthorns under his wonder-

fully skilful management. These Yorkshire cows, though greatly improved in form, are not at all to be confounded with the "improved Shorthorn" as bred by Messrs. Cochrane & Co. They supply two-thirds of the milk sold in London, and if the London dairyman does not know what sort of cattle it pays him to keep, no one does. They would do well on the better qualities of soil in the Eastern Townships. An average cow of this breed should dress about 1200 pounds the four quarters.

Cultivation vs. manure.—So cultivation will take the place of manure, will it? I rather think not! The old theory of Jethro Tull, of Smith of Lois-Weedon, and others, I thought was quite exploded, until I saw an attempt to revive it in one of last year's U. S. agricultural papers. To convince my neighbours of its absurdity, I, in the summer of 1884, sowed two rows of white turnips without any manure. The two rows were sown, one between a piece of carrots and a piece of swedes, the other between a piece of mangels and a piece of cabbages. Treatment received, the same as the other root crops, except that no manure was given: four horse-hoings and two hand hoings. The seed was good, the plant was perfect, the land was utterly worn out, and the largest turnip did not exceed an ounce in weight; while the carrots, swedes, mangels, and cabbages that had cultivation and dung, were about as good as they grow them.

Dairymen's meeting.—The Convention of Dairymen of the Province of Quebec took place on January 13th, and as a friend writes me word, "was a very great success. The feature for which the convention was particularly interesting was the remarkable interest shown by at least two hundred French-Canadian farmers and dairymen during two days to agricultural matters. This is a *revival* indeed. At the next meeting, which will be held at Quebec in the week following the opening of the session several important subjects will be brought up. I sincerely hope you may be there and share our enthusiasm. I expect a still better meeting than the last, and I hope to have at least one session in English, and a two days meeting. This, however, remains for decision."

Huntingdon Dairymen.—A convention of those interested in the dairy will be held at Huntingdon shortly. All are invited to attend. The date of this meeting will be given in the Journal when it is settled, as well as in the daily and weekly press.

Canadian Cattle.—At the St. Hyacinth dairymen's convention, was read a report, by Dr. Couture, on the Canadian cows which competed for the prizes offered for the best Canadian milk cows." M. Couture was followed by M. Lesage, the deputy commissioner of agriculture, who read the list of the fortunate competitors:

M. l'abbé Gérin, curé de St. Justin, \$100 for "La Major," 12½ lbs. of butter in seven days.

M. Damase Paradis, St. Sébastien d'Aymer, \$50 for "La Rougette," 10½ lbs. of butter in seven days.

M. Massé, St. Grégoire d'Iberville, \$25 for "La Noire," 9½ lbs. in seven days.

Two other prizes were awarded to two good milk-cows, though they were not pure-bred Canadians. M. Lesage then congratulated the association on their successful meeting, mentioned the great interest the Commissioner of Agriculture took in the convention, and having alluded to the establishment of a veterinary school at Quebec, concluded by strongly recommending the members of the society to turn their attention in a special manner to the manufacture of butter.

M. Couture gave some details on the characteristics of the

Canadian cow. The Hon. J. de la Bruère spoke, among other subjects, of the good done by the visits of the inspectors of the society to the cheese-factories; he touched upon the competitors for the milk-cow prizes, five in number; mentioned the crisis through which the dairy-industry was then passing, and strongly insisted on the necessity that existed of making both butter and cheese of the very best quality.

M. l'abbé Montminy, after moving that a similar convention be held at Quebec during the approaching session, a motion which was carried unanimously; begged every member present to do his best to persuade all the farmers of his parish to read the Agricultural Journals. A recommendation in which I most earnestly concur. A. R. JENNER FUST.

Competition of Farms—County of Portneuf. II.

Our readers are requested to refer to the plan of the farms, and to the table No. 1, published in the January number of the Journal. This table shows the number of points assigned to the competitors for each article in the programme.

If this formula were adopted in all the competitions, it would be of great use to the farmers, since it would show them at a glance where their rotations failed in regularity.

We will now give the system followed by the competitors in each of their fields, for the last ten years, according to the most accurate information we could obtain. First prize, François Couture, Jr. (See Plan No. 1.)

Number of field	Square arpents.	When manured	1885	1884	1883	1882	1881	1880	1879	1878	1877	1876	Remarks.
1	Arp perch. { 1.73 2.27		(1)										
Hill	1.00												
2 & 3	9.52				Sugary.								
4	1.87	1878	Meadow.	Meadow	Meadow.	Meadow.	Meadow	Meadow	Wheat. Barley.	Vegetables.	Oats.	Pasture.	1876 Drained and stoned
5	2.00	{ 1879 1880	{ " "	" "	" "	" "	" "	Wheat manured Oats	Potatoes.	Oats.	Pasture.	"	1877 Drained and stoned.
6	1.87	1879	" "	" "	" "	" "	" "	Wheat	Potatoes. Oats.	" "	" "	"	1878 Stoned.
7	1.87	{ 1884 1880	{ " "	" "	" "	" "	Wheat	Potatoes	Oats	Pasture.	"	"	1879 " "
11	1.87	1881	" "	" "	" "	" "	" "	Buck-wheat	" "	" "	" "	"	1874 Drained and stoned.
10	2.50	1882	" "	" "	" "	Wheat	Oats	Pasture	Pasture.	"	Meadow.	Meadow.	1880 Stoned.
12	1.75	1882	" "	" "	" "	" "	Potatoes.	Grain	" "	" "	" "	"	1875 " "
8	6.00	Very rich	Oats.	Pasture.	"	Meadow	Meadow	Oats.	"	"	"	"	1881 Perfectly drained
9	3.00	"	(2)										20 feet between drains.
13	5.00	1884	{ 1/2 arp. vegetables. 2 1/2 wheat 2 1/2 oats.	3 1/2 potatoes, 1 1/2 buck-wheat.	Oats	Pasture	Pasture.	Pasture	Meadow.	Meadow	Pasture.	Pasture.	1882 Stoned.
14	3.00	{ 1879 1880	Pasture.	Pasture	Meadow	Meadow	Meadow.	Wheat. Oats.	Oats Potatoes.	Oats.	"	"	1883 " "
15	3.50		1 arpent grain. 2 1/2 arpent pasture.	"	Pasture.	Pasture	Grain.	"	"	Pasture.	"	"	1885 " "
16	4.50	{ 1882	Pasture.	"	Meadow. Oats.	Meadow. Potatoes	Meadow	Meadow.	Meadow.	Oats.	"	"	1885 An arpent frozen : sown with mixed oats buckwheat and barley : very fine crop.
17	4.50	{ 1885	Potatoes. Buck-wheat.	Oats. Pease.	Meadow.	Meadow.	Potatoes.	"	Oats	Pasture.	"	"	1879 Stoned.
18	3.00		Pasture.	Meadow.	"	Oats.	Grain.	Oats.	Pasture.	"	"	"	
19	4.62		"	Oats.	Grain.	Grain.	"	Pasture.	Potatoes.	Meadow. Oats.	"	"	
" S	4.63	{ 1883	Wheat	Wheat Meadow.	Potatoes. Meadow.	Oats. Meadow.	Meadow.	Meadow	Meadow.				
20	1.50		(3)										
	50		(4)										

Total 72 arpents,	1 arp. 23 perch. house, buildings, yards, &c.	Remains to be manured and cleaned to complete the rotation :
12 " 90 p.	50 little river.	No. 15..... 3 arp. 50 perch.
Reste 60 " 00 p	10 " 27 wood and sugarbush.	1/2 " 16..... 2 " 25 "
		1/2 " 17..... 2 " 25 "
		" 18..... 3 " 00 "
		1/2 " 19..... 4 " 62 "
		1/2 " 19..... 2 " 31 "
	In cultivation, divided this in 1885 :	
	Meadow..... 17.00	
	Pasture..... 26.50	
	Grain..... 13.75	
	Potatoes..... 2.25	
	Vegetables..... .50	
	60.00	17 arp. 93 perch.

(1) House, garden, yards and buildings, orchard and permanent meadow. Formerly ravine and swamp, now drained, &c.
 (2) Permanent pasture (marvellous quantity of bowlders extracted).
 (3) Small stream bordered by permanent pastures serving as roads.
 (4) Small bush, on a rocky point on the St. Lawrence.

The fields Nos. 8 and 9, containing 9 arpents, have not been manured, but they are naturally very rich. Besides, the thorough working they have received in taking out such a vast quantity of bowlders has made almost new land of them.

It will be remarked that the hoed crops amount to about $\frac{1}{10}$ of the land in cultivation. M. Couture also manures 3 arpents of grass each year. Many of the fields have been manured for grain, and have not as yet had any fallow or fallow-crops. This want of fallows is the cause of M. Couture getting so few marks for his rotation. Strictly speaking, we might have given more points, but all the competitors were judged by a like scale, to make them see that their system on this point was capable of improvement. And nothing could be easier, as they all grow more or less buckwheat, and it seems to us, that it is in preparation for this crop that cross-ploughings and other means of pulverising and cleaning the land ought to be practised. It would then be only necessary to sow grass-seeds with the buckwheat, or in the following spring, with or without a grain-crop, but with a half-coat of dung, as a top-dressing, and a commencement would be at once made of a really certain improvement, having for its foundation cleansing crops, vegetables, fallows, &c., on at least one-tenth of the arable land. This is always supposing that the growing of root-crops is not possible, or if possible, not profitable.

Nevertheless, M. Francois Couture has worked marvels on this farm. Though the plan shows the immense stone-walls with which it is covered, they must be seen to be appreciated. The drains, too, must have cost a vast deal of labour, especially in No. 8 and on the hill. I feel convinced that before long the whole of this farm will be worked in an irreproachable manner: the admirable energy and pluck of its proprietor prove it.

Here, now, is a table of the yield of the land and of the net profits, deduction being made of the outlay in the purchase of cattle, grain, hay, &c. By it will be seen the gradual progress made by M. Couture since he bought the farm in 1872.

HARVESTS FROM 1872 TO 1884, COMPARED.

	1872	1884	Stock in 1872	—	1885
Potatoes...	100 bush.	500 bush.	Cows....	5	(1)
Hay.	1100 bales.	3250 bales.	Bull. ...	1	
Wheat.....	—	22 bush.	Horse....	1	
Pease.....	—	12 "	Heifer 2 y.	1	
Barley.....	6 bush.	14 "	Sheep ...	4	
Buckwheat.	12 "	10 "	Pigs. ...	2	
Oats.....	150 "	260 "	Cattle ...	9 head	30 hd
Apples. ...	—	70 "			

This farm, then, has tripled its rate of production in twelve years, and M. Couture will soon succeed in making it yield a third more than it does now. Have we not a right to say that the farms of this province are capable of yielding twice and even three times as much as they do now? No better example can be cited than the farms of the three brothers Couture. Incited thereto by the advice of their venerable and devoted parish-priest, the Revd. Messire Pilote, they studied and discussed *en famille* the agricultural improvements that their means enabled them to undertake. Starting on a small scale, they crept on by degrees, until, prudently calculating their success or failure at each step of their road, they arrived at the degree of prosperity in which we now find them. They are, all three, determined to leave

(1) See table in February number, where all the young stock, poultry, &c., are reduced to head of cattle.

genuine model farms to their children, and by this word *model*, they understand a system of cultivation which will return the greatest cash profits without injury to the soil

The following is a list of the net profits of M. F. Couture's farm, in addition to the keep, clothing, fuel, &c., for the use of his numerous family, as far as the farm could furnish them. M. Couture has eight children, the eldest only in his eleventh year. What would be not have done had he had children old enough to help him.

Net profits, after paying for cattle for fattening, grain, &c.

1876.....	\$459.26
1877.....	547.60 (Horse sold.)
1878.....	353.00
1879.....	442.00
1880.....	449.00
1881.....	574.00 (Horse sold.)
1882.....	362.00
1883.....	522.00
1884.....	527.00

Besides drawing and clearing off bowlders, Mr. Couture has built two small barns at equal distances from his principal buildings, at the two ends of his farm in the fields Nos. 7, and 16, respectively. He has repaired his buildings and doubled them in capacity, and has built a new model sugary, with the most perfect evaporators. He has bought a costly stone-extractor; he has quadrupled his stock of cattle. Moreover, it is important to observe that all these improvements have been made in the dead-season, when labourers were to be had for little more than their board. Thus, in examining the money returns of the farm, we must not forget that much of its products have been transformed, directly, into improvements of the property.

The Dairy.—Owing to the difficulty of finding good women servants, together with the trouble given by his numerous family, and the number of men he has to board, Mr. Couture prefers fattening cattle to keeping more milch-cows. We are under the impression that the sale of butter in town would pay him better. (2)

Manure sheds.—All the Messrs. Couture have done their best to preserve the whole of their manure. Still, their plans to this end admit of improvement.

Preparation of food.—Mr. Frs. Couture heats water in the annex of his cow-stable, and ferments all the food of his cattle, pigs, &c. He has proved, like ourselves, that this preparation of the food saves one-third of the consumption of the milch-cows and pigs. (3)

Authors do not agree on this point; but all admit the utility of warming the cattle in winter by other means than by additional quantities of food. May not this be the explanation of the invariable results we have regularly obtained during an experience of thirty years.

Purchased-food.—Mr. Couture finds it pay, even on his small farm, to buy, on an average of years, about 150 bushels of grain, 2000 lbs of linseed cake, straw, and a little hay. The grain and the hay, however, are generally the produce of some pieces of land in the neighbourhood, which he farms on shares, rather than break up his excellent meadows as long as they give 200 bundles an acre. We think he is right.

We submit these remarks to our readers, in hopes that

(1) An average of about \$480 a year. From this should be deducted the interest on the capital sunk in the purchase of the farm, of cattle and implements; and then there is the labour of the proprietor himself and, perhaps, of his wife, to be considered, even if no hired labour was employed.

(2) If all the farmers are to be dairymen, whence are we to get our meat?

(3) This conclusion I must beg to differ from entirely.

A. R. J. F.

A. R. J. F.

A. R. J. F.

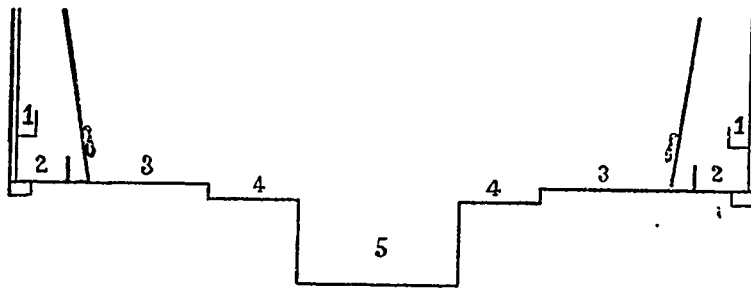
they will be discussed and that the results of the discussion will be useful to the farmers of the province.

Competition For The Best Cultivated Farms—Portneuf.

M. ALEXANDRE COUTURE, 2nd PRIZE.—At first sight and without deep consideration, it would have appeared to us that M. Alexandre Couture deserved the first prize. His farm is an excellent one, and very well managed. Everything is in good order, and, aided by his father and his older sons, he has succeeded in completely transforming the appearance of his land, as may be seen by an inspection of the farms of his neighbours—what his once was, his neighbours' are now. If we had been allowed to separate those 60 acres of his that have been most improved by drainage, the cultivation of potatoes, &c., the competition would have been still greater. The elder brother will need all his energy, if he intends to retain his present position ten years hence! Ten years hence! If we live so long, what changes shall we not see in the

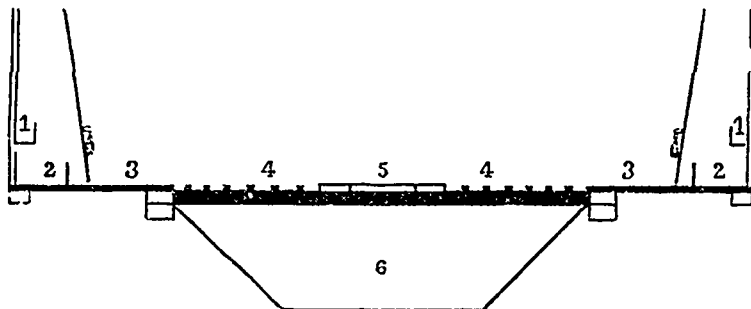
as this that permanent meadows and pastures would be in their proper place. How many of these fine farms are worn out by reiterated grain-crops; never manured, and not even properly ploughed and harrowed! Here, however, the ploughing and harrowing are well done; the farm is admirably subdivided; drainage is begun; and this autumn Mr. Couture proposes to import ashes from Quebec. We advised him to try the effect of the refuse of the lime-kilns of the neighbourhood and to sow other grass-seeds besides timothy. Good working of the land and spring rolling would do the rest. Still we have great confidence in a dressing of dung on the meadows.

Here, then, are 50 acres of naturally first-rate soil. While Mr. François Couture was bending under the weight of his enormous boulders, blasting them and getting rid of them in every way possible, he must often have envied his younger brother the possession of his low lands. In our decisions, we took this great expenditure of labour into consideration, as well as the additional profits obtained by Mr. François



No. 1.—Present cowhouse with open dung-pit.

1. Troughs.
2. Mangers.
3. Flooring.
4. Passages.
5. Temporary dung pit.



No. 2.—Same cow-shed with lattice-covered dung-pit.

1. Troughs.
2. Mangers.
3. Short floors (3 feet long).
4. Lattice above the pit.
5. Moveable passages.
6. Double-sized dung pit.

farming of this parish! What blessings will not be invoked on the heads of the Revd. Mr. Pilote, and the Revd. Mr. Bélanger, to whom the honour of this transformation is indubitably, in great part, due.

If we examine the system of cultivation pursued in each of the fields, we shall probably see the reasons which guided our decision: see table on the next page.

Nos. 19-27 are composed of sixty arpents (50½ acres) of the finest alluvial soil in Canada. In no. 27, we have a specimen of perfect gardening, for which purpose it has been used for many years. Would any one believe that this land has yield abundant crops of vegetables every year without a particle of dung? Its fecundity is marvellous! Nevertheless, we feel convinced that the whole of this fifty acre piece, though it yields prodigiously without manure, would produce half as much hay again were it dunged.

This farm, alone, would form a magnificent occupation. Well drained, well manured, and cultivated with the care it deserves, its yield would be enormous. It is in such a situation

Couture, united to the permanent improvement of the land.

At the Messrs. Couture's and at other farms, particularly at Deschambault, we observed a deep pit sunk in the passage of the cowhouse, between two rows of cows, wherein was thrown all the dung. The pit would hold the manure made during a fortnight. It is emptied into a dung-shed, or carried to a heap made in the field intended to be manured the next spring. An excellent plan, this, where a cellar to receive the dung and urine cannot be had. Still, we advise our friends to increase the width of the pit, so far as that the cattle may lie with their hind-quarters on a grating. This would allow the urine to fall directly into the pit, and, if the bottom were lined with moistened clay well beaten, none of it would be lost. The following cut, No. 1, shows the present form of the pit, and No. 2, shows the form we purpose to substitute for it.

The alteration we suggest needs joists to cover the pit, and a grating of wood laid lengthways, with a space of an inch and a-half to two inches between the pieces of which the

(2ND PRIZE, ALFRED COUTURE)

CULTIVATION FOR THE LAST TEN YEARS.

Number of field.	Square arpens.	When manured	1885	1884	1883	1882	1881	1880	1879	1878	1877	1876	Remarks.
1	1.25 2.50		(1) Meadow.	Meadow.	Pasture.	Pasture.	Pasture.	Oats.	Oats.	Meadow.	Meadow.	Meadow.	New land
2	2.50		Pasture.	Pasture.	Grain.	"	"	Pasture.	Pasture.	"	Oats.	"	
3	11.25		"	"	Pasture.	"	Meadow.	Oats.	"	Pasture.	Pasture.	Oats.	
4	4.00		Meadow.	Meadow.	Meadow.	Meadow.	"	"	Oats.	Oats.	"	Pasture.	
5	.66		Wheat.	Pasture.	Pasture.	Pasture.	"	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	
8	2.65		Pasture.	"	"	Meadow.	"	Oats.	Oats.	Pasture.	Pasture.	Pasture.	
6	3.00		Meadow.	Meadow.	Meadow.	"	"	Meadow.	Meadow.	"	"	Oats.	
	.34		Garden.	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	2.69		Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Buckwheat.	Oats.	Meadow.	Meadow.	Meadow.	
			Wheat.	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	4.00	1881	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
		1882	Meadow.	Oats.	Potatoes.	Potatoes.	Potatoes.	Oats.	Meadow.	Meadow.	Meadow.	Meadow.	
		1883	1/2 a. turn.	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	2.50	1885	2 a. potatoes.	Oats.	Oats.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	
11	4.00	1876	Pasture.	Pasture.	Pasture.	Pasture.	Pasture.	Pasture.	Pasture.	Oats.	Potatoes.	Potatoes.	
12	6.65	1877	Oats.	Oats.	"	"	"	Oats.	Oats.	Pasture.	Pasture.	Pasture.	
13	4.50	1879	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
		1880	Meadow.	Meadow.	Oats.	Oats.	Potatoes.	Potatoes.	Potatoes.	Oats.	Meadow.	Meadow.	
		1881	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	3.50	1883	Potatoes.	Buckwheat.	Potatoes.	Oats.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	
15	6.75	1885	Pasture.	Pasture.	Pasture.	"	Oats.	Pasture.	Pasture.	Pasture.	Oats.	Oats.	
16	4.50	1884	Grain?	Potatoes.	Oats.	"	Pasture.	"	"	"	Pasture.	Pasture.	
		1883	.....	Oats.	Potatoes.	"	.....	.....	.....	.....	.....	.....
17	4.00	1378	Meadow.	Meadow.	Oats.	Pasture.	"	"	Oats.	Potatoes.	"	"	
18	4.66		"	"	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	
19	7.38		(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	7.50		Meadow.	Meadow.	Meadow.	Wheat.	Oats.	Pasture.	Pasture.	Pasture.	"	"	
21	7.50		"	"	"	Meadow.	Wheat.	Oats.	B'wheat.	"	Pasture.	Pasture.	
22	7.50		"	Pasture.	Wheat.	Oats.	Oats.	Pasture.	Pasture.	"	Meadow.	Meadow.	
23	7.50		Pasture.	"	Pasture.	Meadow.	Meadow.	Meadow.	Meadow.	Meadow.	"	"	
24	7.00		Meadow.	Meadow.	Meadow.	"	"	"	Oats.	B'wheat.	Oats.	Pasture.	
27	.62		(3)	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	10.00		Buckwheat.	Oats.	Pasture.	Pasture.	Pasture.	Meadow.	Meadow.	Pasture.	Pasture.	"	
26	2.00		(4)	.....	.....	.....	.....	.....	.....	.....	.....	.....
	3.00		Pasture.	Pasture.	Pasture.	Meadow.	Meadow.	"	Oats.	B'wheat.	Oats.	"	
Total..	136.00		(5)	
	4.50		
	140.50		

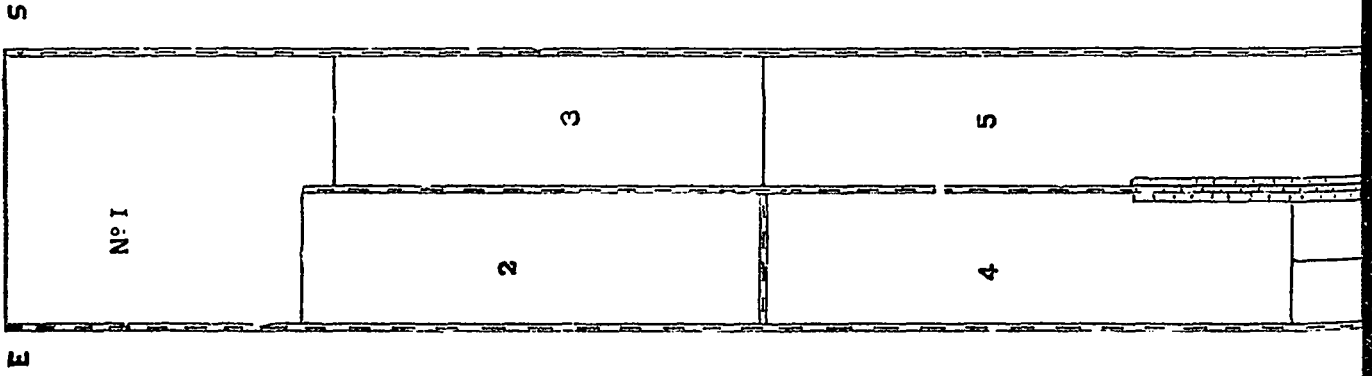
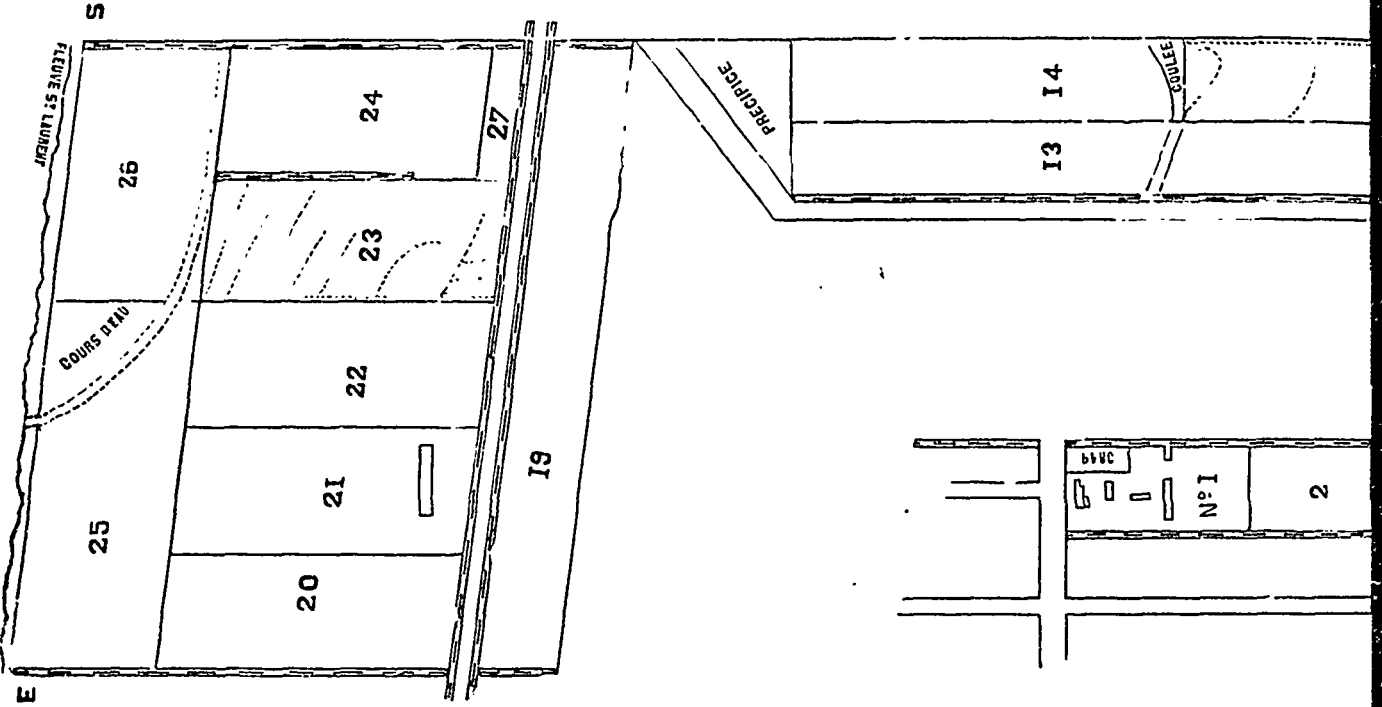
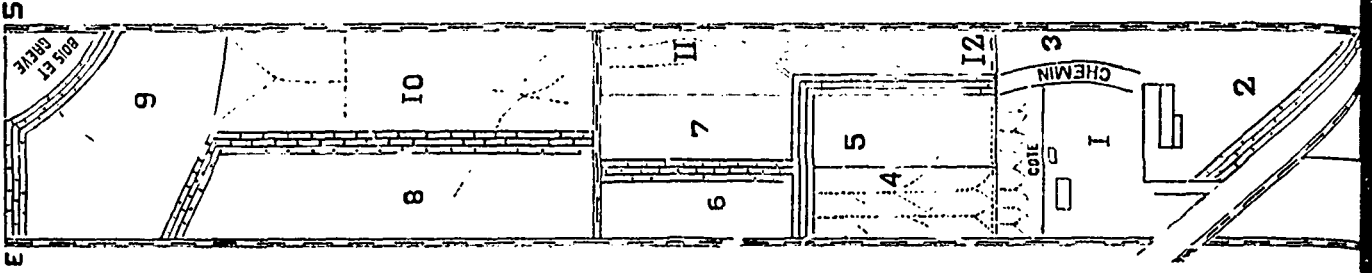
RECAPITULATION OF LAND IN CULTIVATION IN 1885 :

Potatoes.....	5 arpents 50 perches.
Turnips.....	" " 50 "
Pasture.....	39 " 65 "
Meadow.....	57 " 50 "
Wheat.....	2 " 01 "
Oats.....	11 " 25 "
Orchard.....	7 " 38 "
Buckwheat.....	00 " 91 "
<hr/>	
	134 arpents 75 perches.
House, &c.....	1 " 25 "
Waste.....	4 " 50 "
<hr/>	
	140 arpents 50 perches.

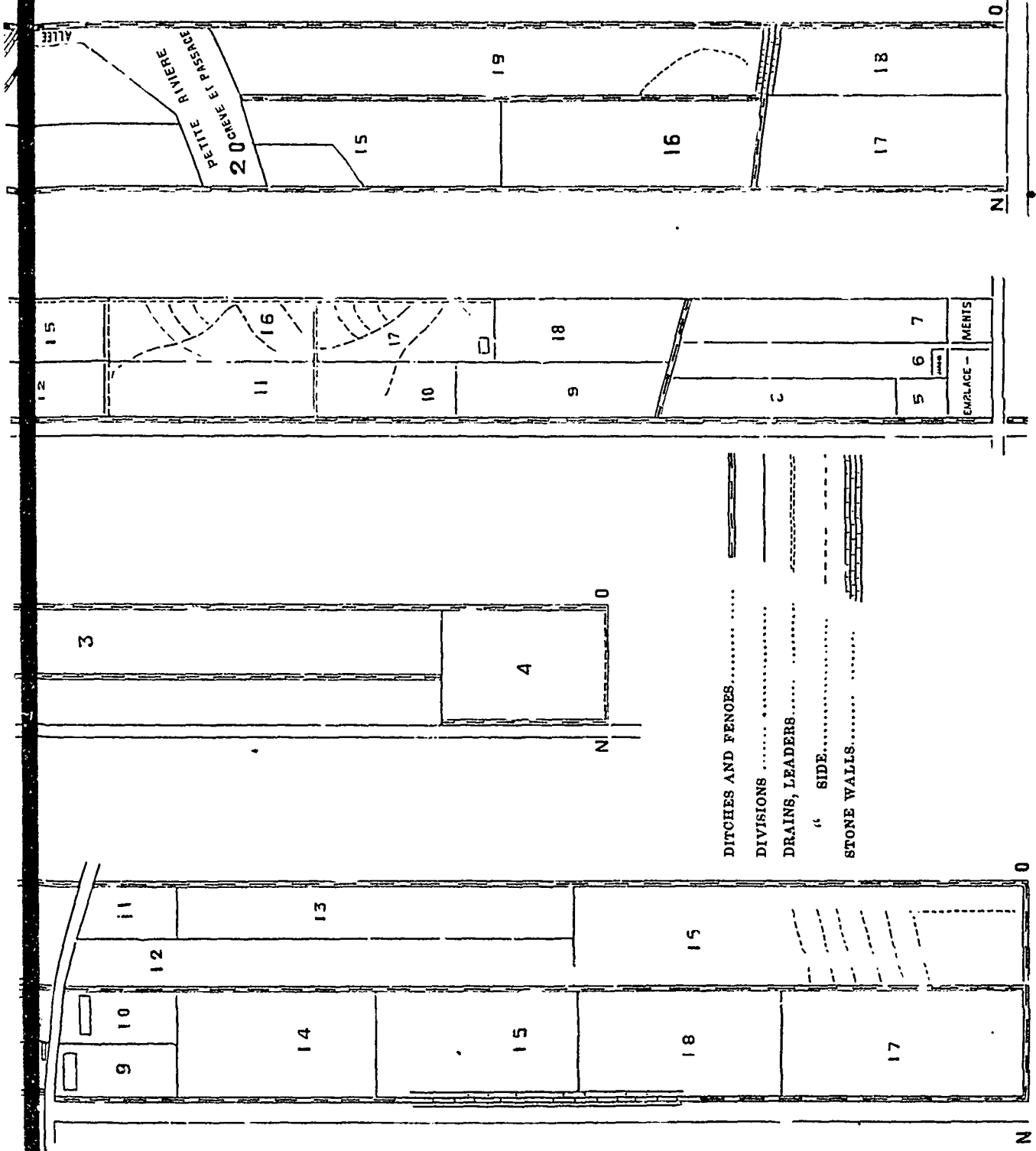
(1) House, buildings, &c.
 (2) Orchard, fruit, at the foot of a hill.
 (3) Garden, and very rich orchard, never been manured.

(4) Swamp, wants draining
 (5) Streams and ravines.

COMPETITION OF THE FARMS OF TH



COUNTY OF PORTNEUF. (Diagram.)



1st prize.

2nd prize.

3rd prize.

grating is composed, so as to allow the passage of both solid and liquid fæces. It should be made of strong wood, two inches wide by four deep. On the joists must be placed a small block of wood between each two pieces of the grating to keep them in position. Every thing considered round iron bars are cheaper and more efficient than wood, and we would strongly recommend them. Iron is now about 2 cents a lb. |

If litter is used, it can be thrown with the droppings into the dung-pit by raising a board in the moveable passage. If, as with us, no litter is used, the dung will fall through the grating, and a broom used once a day will clean out the cowshed perfectly.

When you want to clean out the pit, you have only to take away the movable passage, and all difficulties will vanish.

The advantages are : 1, the doubling of the size of the dung-pit; 2, the beasts are kept dry, while, at the same time no urine is lost; 3, a great economy in litter, and, if required, the conversion of the whole of the straw into food.

The extent of the grass-lands, as compared with that of the land under plough, will strike every one : this is splendid. Little remains to be done to arrive at perfection. A few acres of clover, well manured, to be cut green two or even three times, to give the stock when the grass is dried up, and to feed the milch-cows with at all times.

Again, one member of the rotation should be a fallow; to be ploughed deep in autumn after the stubble has been pared or grubbed. Here should come several grubblings in the spring, in dry weather, to destroy the weeds, and pulverise the soil; then, should follow potatoes, roots, or buckwheat, with plenty of dung, according to the wants of the soil, and the means at your disposal. And then would harvests, double what they are now, succeed one another on the same piece for many a year.

Do people understand the improvement which clover would make on land of this sort? We think not. Let it be tried, even without timothy, at the rate of 12 lbs per arpent on well manured land. There would be three cuttings of green-meat in the same year, a foot high each, at least, and the ley should be ploughed in autumn to be sown in spring with wheat seeded with clover and timothy. I should hear a good report of it, I am sure.

I do not like to see, as in the table above, potatoes planted three years or even two years following on the same ground Messrs. Alex. and Alfred Couture, with this description before them, and with drains put where wanted, will soon abandon this vicious practice.

M. Couture, who lives in the village of St-Augustin, finds it pay to take in the villagers' cows to pasture. He buys all the manure he can get of.

YIELD, AND CASH RECEIVED...		IDES THE EXPENDITURE ON ELEVEN IN FAMILY.			
1881	1882	1883	1884		
Oats (bushels).	650	358	485		
Wheat.....	50	25	21		
Buckwheat.	16	16	12		
Pease.....	18	12	13		
Potatoes.....	525	480	421		
Hay.....3,200 bundles	3,400	7,500	6,500		
Eggs.....256 dz.	\$ 52.18	312 dz.	\$ 63.68	217 dz.	\$ 48.42
Butter.....782 lbs.	\$162.22	816 lbs.	\$199.83	724 lbs.	\$177.83
				230 dz.	\$ 53
				867 lbs	\$186.31
Total sales.....	\$857.96	\$823.11	\$686.30		\$576.83

Our readers will observe how greatly the cash returns have diminished during the last few years. This is probably due to the low price of hay at Quebec. M. Couture gets 23 cents a pound for his butter. He had, we think, better keep more cows, and, giving them the hay and grain, make as much butter in winter as possible. But why don't the three brothers start a small model creamery? No one can be better placed for this than M. Alexandre. We are convinced that he would be

soon able to sell, at good prices, not only the family's butter, but also that which the greater number of the farmers of St-Augustin would get him to make for them.

We must not forget, before finishing this report, to mention the dairy : it is a real model. Adjoining the house, it is six feet by twelve, with a wire window at each end, S. W. and N. E., giving perfect ventilation. The pans are of earthenware, and cleanliness reigns over the whole. The butter is made in a part of the cellar set aside for the purpose, and the milk is cooled in a well before it is run into the pans. A table with butter workers, &c., permits of the extraction of the butter-milk and the addition of the salt without the butter being touched by the hand.

(From the French.) ED. A. BARNARD.
The rest of our visit to St-Augustin in the next number.

FARM MEMORANDA.

THE ENGLISH ENSILAGE COMMISSION.

The following is the preliminary report of the Ensilage Commission, of which Lord Walsingham is chairman :—

The Commissioners have, up to the present time, held 11 sittings and examined 38 witnesses, comprising among their number owners and occupiers of landed estates and their agents, tenant-farmers, designers and inventors of different forms of silos, or of different systems of applying the necessary weights to stacked or ensiled green fodder, chemists, and authors of pamphlets on the general subject. They have also had the advantage of hearing the views of Sir John Bennett Lawes, whose eminent knowledge of all matters relating to the chemistry of agriculture, combined with the fact that his published opinions on the process of ensilage have been regarded as unfavourable to the system, has rendered his evidence of great value and interest.

The Commissioners have by no means desired to exclude unfavourable evidence; on the contrary, they have endeavoured to induce some of those who were believed to be opposed to the system to give them the benefit of their opinions, but they have so far heard no expression of any decidedly unfavourable views. The evidence tendered has been entirely voluntary, all witnesses attending at their own expense.

The evidence of all those who have practically tested the various methods of converting green-fodder crops into preserved food for animals without putting them through any process of drying, such, as is necessary in the making of hay, has, without exception, established their claims to a considerable amount of success; and although in some cases the results have been evidently more satisfactory than in others, the advantages which the different operators, one and all, have claimed for their systems seem to show that a nourishing and useful food for animals can be preserved, independently of any drying process, within wide lines of divergence in the details of the methods adopted.

It has been conclusively shown that, by different degrees of weighting and of expulsion and exclusion of atmospheric air from the material stacked or ensiled, different degrees of heat and of consequent chemical change are produced.

The degree to which such chemical changes increase or diminish the feeding value of the silage itself or its relative value in comparison to the green crop, is, in the present state of knowledge, in great measure a matter of opinion, and careful feeding experiments conducted with a view to test the exact effect of these changes will be highly important to a solution of this question.

Silage which has been covered in immediately after cutting, and not again uncovered, has been shown to retain its colour and freshness, although developing small quantities of certain acids indicative of a process of fermentation without any

considerable accession of heat. Other silage which has been put in at intervals and from which the air has not been immediately or entirely excluded, has undoubtedly developed considerable heat, and in this case the colouring matter of the leaves has been less well preserved. Yet, in both cases, a useful feeding material has been rendered available which, in unfavourable weather, would have been practically lost if any attempt had been made to convert it into hay.

Bearing in mind the importance of economy, the Commissioners have inquired into the efficiency of various systems of stacking unchaffed green-fodder crops without drying, by which it has been contended that, with a proper system of pressure, the necessity for a silo can be done away with.

The Commissioners are not at present prepared to express any opinion upon the economy of any such system, or to compare its advantages with those which are claimed by the advocates of chaffed and close-stored silage; but it seems to be established that a temperature sufficiently high to involve danger of fire can be controlled by a proper and efficient system of applying weight to the stack of green-fodder.

The different systems of applying weight have greatly occupied the attention of the Commissioners, but as the quality of the silage does not appear to be materially affected by this question, it becomes simply one of economy, and may safely, for the present, be left to each operator to decide for himself according to the special circumstances affecting the particular locality in which his farm is situated.

Some of the best samples of chaffed silage have been produced with pressure not exceeding 70 lbs. per superficial foot, but the degree to which weighing is necessary or desirable remains to be decided upon the greatest amount of evidence that may become available to us. Good results are claimed to have been obtained by means of weights varying from 7 lbs. to 300 lbs. per superficial foot on the top of the silage.

The experience of dairy farmers does not appear to justify the assertion which has been more or less circulated that dairy produce is, in any way, injuriously affected by silage as food; on the contrary much valuable evidence has been received to show that feeding cows with well-made silage distinctly improves the yield of milk and cream, and the quality of butter.

Where complaints have arisen of milk becoming tainted, the cause has been, in our opinion, traceable to its having been in proximity with strong smelling silage, or with persons who have handled it, rather than to the use of such material as food.

The Commissioners have already heard sufficient evidence to justify them in encouraging the development of the system of storing undried green-fodder crops as a valuable auxiliary to farm practice. In addition to other advantages, losses, occurring through weather unfavourable for haymaking, may be avoided, and some crops not hitherto grown in this country on account of the impossibility of ripening their seed (such as certain varieties of maize), may probably be successfully cultivated in certain districts, to the increase of our present means of feeding various kinds of live stock on arable or partly arable farms.

(Signed) Walsingham (chairman), H. A. Brassey, A. M. Cardwell, Drogheda, N. Eckersley, Egerton of Tatton, J. S. Gathorne-Hardy, Wm. J. Harris, Nigel Kingseote, Mitchell Henry, James Howard, H. Kains Jackson, Faunce de Laune J. C. Lawrence, Peter M'Lagan, Fredk. Marshall, Henry Robinson, Stanhope Tollemache, Jacob Wilson.

important one. It has been found that eggs preserved in any liquid, such as lime water, do very well so long as they remain undisturbed, but that, when the eggs begin to be used, they very quickly go bad—probably from the air getting to them. Now this is a matter which the judges have no opportunity of testing, and yet it is one which should enter very largely into their consideration in awarding prizes. It is all very well to bring eggs to the show-yard in a high state of preservation, but if the stock, from which they are taken, is to go bad within a limited time, then that particular method is faulty, and undeserving of a prize. That system alone is to be commended which will keep the eggs in good order, and allow of the store being taken from during the scarce, dear months—say from the middle of October till the end of January. Would some readers of the *Gazette* state their experiences, if any, of liquid preservation.—A. L. O. S.

Ag. Gazette—England.

BUTTER MAKING.

At the request of a correspondent, we publish from the *Preston Chronicle*, of July 18th, Miss Smithard's capital lecture on this subject, delivered in the showyard of the Royal Agricultural Society:—

A very practical lecture on butter making was given by Miss Smithard, which was rendered more valuable from its being accompanied by all the operations incident to converting cream into butter, thus illustrating on the instant the various points the lecturer was dilating upon. In the course of her remarks she most emphatically enforced, again and again, the great importance of the most rigid cleanliness in all things connected with the dairy. Unless that cardinal point had constant attention all attempts to produce first-class butter would fail, and she attributed greatly the bad keeping qualities of English butter to the want of thorough cleanliness. Illustrating this portion of her subject, she recommended that all utensils which had contained butter-milk should have three washings—first, well rinsing with cold water; second, well scalded with boiling water; third, again washed with cold water. The need for this order of washing arose from the fact that very minute particles of acid matter out of the butter-milk would be sure to be found in the joints or crevices of utensils; and if the first washing was by boiling water it had a tendency to drive in some acid; hence, first cold and then hot and then cold again. All other utensils should be scalded first and then well washed with cold water; and this should be done just before they were used, and it was better to give a second washing just before use if the utensils had stood unused. Another enforcement of rigid cleanliness was given in urging that the human hand should never touch the butter in any of its stages of making. However clean the hand, there was a minute perspiration ever exuding through the pores of the skin—so small as not to be discovered, but still it was not the less certain that it was always going on, and, of course, it must get into the butter. There were now wooden utensils necessary for every stage of the operations in butter-making, so there was no excuse for using the hands. But in case any dairymaid should not have access to them, the hands might be prepared in the following way, first well washed in warm water, next in cold, and lastly in butter milk. Miss Smithard facetiously remarked that those dairymaids who used their hands ought not to wear finger-nails. (1) She regretted to see in the butter com-

(1) I fancy Miss Smith said *rings* not *nails*.

—EGG PRESERVATION: SHOW-YARD DECISIONS.—In the preservation of eggs there is a certain point which does not come under the notice of the judges, and which is yet a very

petition so much use of the hand; bad keeping butter was greatly owing to the use of the hands and also, of course, to the want of attention to the most thorough washing of utensils in the manner she had recommended.

In butter-making she recommended the use of sweet cream, but it should be ripened; some secured the ripening in the quick way of adding a little well ripened cream to that which was new, but she preferred to keep new cream for 24 hours. In beginning to churn the cream it should at first be done slowly, and great attention should be paid to seeing the churn was well ventilated. So soon as the churning commenced air got evolved, and unless this was released by ventilation the churning would be hindered and in many cases stopped. The speed of churning would have to be regulated by the kind of churn used, there being now such a variety of them, but as a rule when the time came for full speed about 60 revolutions a minute was what she approved. The heat of the cream when put to churn needed to be accommodated to any extremes of very hot or cold weather, but as an average rule 58 degrees to 59 degrees was the right thing. Here she remarked on the very unwise practice of testing the heat of the cream by the use of the finger, which was an unreliable mode; a proper thermometer ought always to be in constant use. She disapproved of the use of either hot or cold water to get the cream the proper heat, the right way was to use a tin cylinder filled with hot or cold water, amongst the cream and keep stirring this cylinder amongst the cream to raise or reduce the temperature as might be required. Remarking that she was then making butter on the Normandy method and without salt she said that butter made on that plan, if thorough cleanliness had been attended to, would keep unsalted for a month. She preferred unsalted butter, but tastes differed; and wherever the market required butter to be slightly salted, she preferred it should be done with brine in preference to dry salt. A suitable brine could be made by well mixing 1 lb of fine salt with one gallon of water, and this brine should be added to the butter before its removal from the churn, and just after the granular butter has been thoroughly washed with cold water. If it should happen that the brine was too strong, there was a ready method of removing the oversalting by giving the butter in the churn another washing of cold water. Referring to Normandy butter, she said that it had driven all but the very finest English out of their own markets, owing to its excellent keeping properties, it came unsalted by sea, then land carriage, and after passing through several hands in the regular course of trade it was sold by the retail dealer pure and fresh as when sent out from its foreign makers. Until English could produce butter of equal keeping properties they would have to submit to the severe foreign competition.

The operation of churning being about finished, Miss Smithard proceeded by the use of a suitably shaped wooden scoop to look at it with a view to ascertain if the time was ready for the washing process. On looking at a scoopful she called attention to its granular condition, remarking there was a danger of over-churning, unless they were careful, and they should always stop when it arrived at a granular condition; the size of the granules should be about that of a pin's head. She here carefully drained off all the butter milk (1) which ran out of a tap in the churn, and, passing through fine muslin, any particles of butter allowed to escape were caught in the muslin and returned to the churn. She cautioned them against beginning any washing with cold water, until every drop of butter-milk had got drained out of the

churn. She then washed the butter four times with cold water remarking that if at the end of the fourth washing the water did not run clear, then a fifth might be used. The butter should never be left to remain unwashed in order to go to any other work. The washing should be done so soon as the proper stage had arrived, and while not too long a time should elapse betwixt the washings, neither should it be hurried.

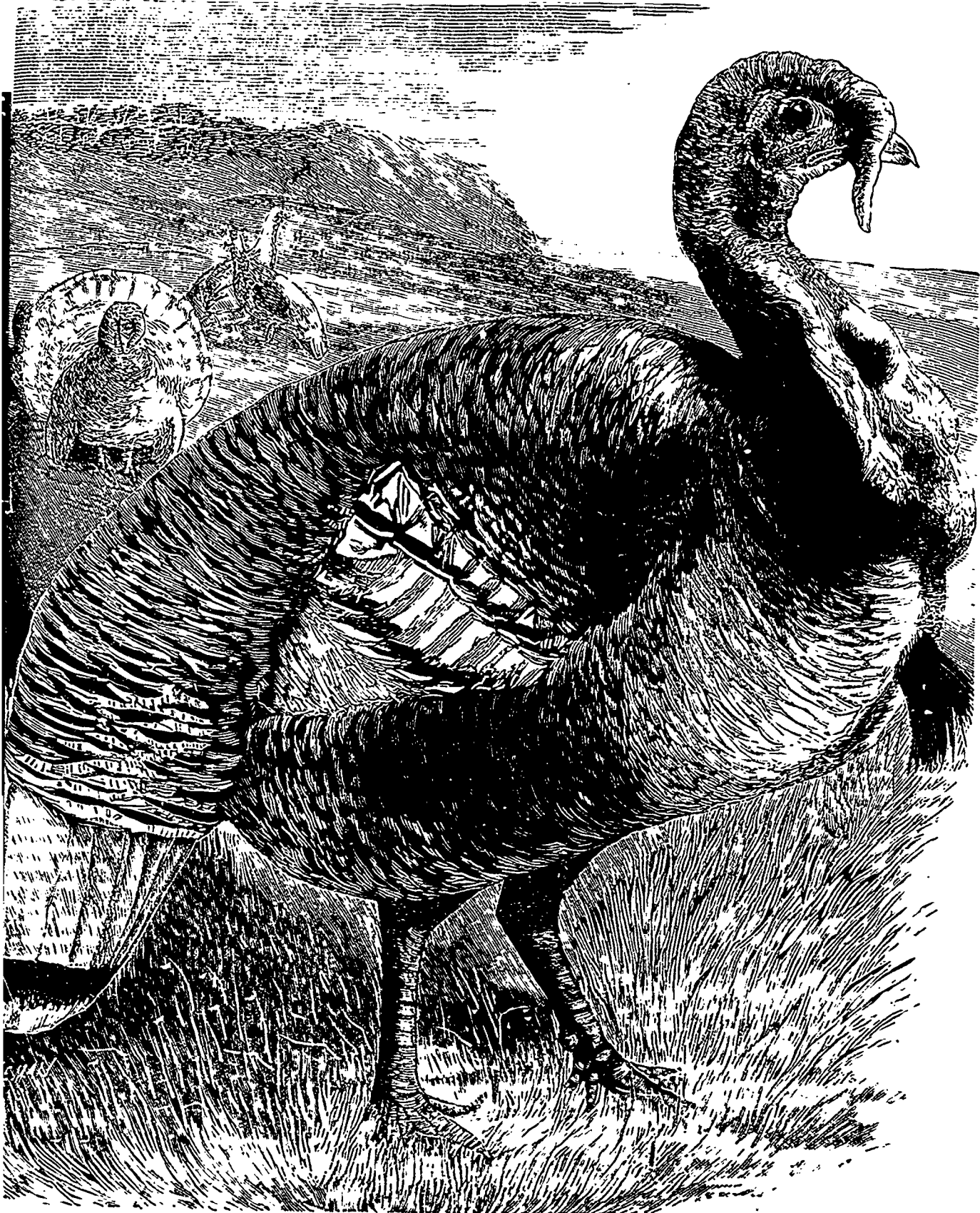
On removing the washed butter, one of the audience asked the temperature, when Miss Smithard pushed her little glass thermometer into the mass and announced that it was 59 degrees. She next placed the butter upon the butter worker, which is simply a large wooden tray on legs, to which is fixed a fluted wooden roller. She passed the butter a few times under the revolving roller and then proceeded to put it in the hardening box. After cutting it up into lumps and placing it upon a wooden fluted tray, she put in into the hardening box, remarking that it ought to remain there for several hours - she preferred not less than four hours. She next took out of the hardening box some butter made at a previous churning, calling attention to its great firmness. She cautioned against working the butter too much, as it had a tendency to make it greasy. At this stage she removed the butter from the hardening box, at the request of one of her hearers, and again brought her thermometer into use, when it was found that in place of butter being 59 degrees, as it was when removed from the churn, it had been reduced to 45 degrees, and had become remarkably solid. She said that the hardening box was a most valuable utensil, and one that no dairy ought to be without. Miss Smithard next proceeded with the use of two wide-bladed wooden knives to cut up the lump of butter, and weigh it into pound pieces, after which she cleverly made it into a circular pat and stamped with a wooden mould, thus completing every operation without ever touching it with her hands. Another shape of the one pound pieces was that of a roll, both that and the pat being wrapped in muslin cloth. At the close of her lecture Miss Smithard received the appreciative applause of a highly-attentive audience.

The Protection of Young Plantations against Frost.

Sir—Passing from Chicago, thirty miles to the north, along the lake, we reach Waukegan, the home of the leading tree-planter in North America, whose trees I have found growing by the thousand on the distant Atlantic coast, in the far south, and over the eastern prairies. I think of all the localities I have visited, trees seem to flourish here the best. It is not the soil, for that is evidently but poor and sandy. It may be that the atmosphere—from which, in fact, trees derive most of their nourishment—is the cause. Here, on the shores of Lake Michigan, exposed to the full force of the eastern winds, the lake breezes meet and mingle with the air of the prairies. Whatever the cause, the maple foliage now autumnal reddened stands from the tree with a bolder and a wider spread. The pine and cedar are of richer green than I have seen elsewhere.

Here, on the extensive grounds of Mr. Douglas, are great masses of closely standing young pines, spruce, and larch, acres in extent, illustrating the principle on which he has commenced, throughout the States, many large and thriving plantations. Let me first state the object for which trees cultivated in this manner are planted.—1. To grow wood more rapidly than any other process will give it. 2. To grow that wood in straight beams. 3. To obtain much more wood from the same ground than an equal space in the natural forest would give. 4. To create such a plantation as will, in exposed situations, act as

(1) If you please, my dear readers, do pay attention to this.



BRONZE TURKEY COCK.

A COMPLETE AND IMPERVIOUS SHELTER,

and will give dense shade on every side, so as to benefit cattle without the necessity of allowing them to enter and injure it. 5. To create one which will also act as a reservoir of moisture, preventing rain from passing too rapidly away, and giving it out gradually by feeding springs, and otherwise—a most valuable quality, especially where the plantation can be located on the higher portions of the farm. 6. To plant so that the trees will never need pruning, but will prune themselves so that after two or three years no cultivation will be necessary, and no weeds appear.

All this is secured by planting trees not more than four feet apart each way. For two or three years they are cultivated to destroy weeds, and after that the depth of shade they cast prevents further growth. This great mass of trees then, growing up closely together, presents always on the upper surface of the grove a succession of bright, green-leaved, and healthy tree tops, while inside the grove the appearance will be very different. There will here, especially in the case of evergreens, be many decaying and falling branches. In fact

THE SHADE WILL KILL OFF ALL BRANCHES

but the upper ones. As the grove gets taller, and the trees larger, there will be too many trees, and the weakest of these will in turn be killed by the strongest depriving them of light and air, till the proper number of trees is left on the ground.

Nothing need be done so far to assist nature. But if the trees have been properly selected, this process of crowding on can be made convenient to the uses of the owner of the plantation. If every here and there among the trees at proper distances have been planted such as are of slower growth, the quicker growing can be taken out as they mature, and those of slower growth left to continue the grove; or those whose timber is most valuable can be left, those least valuable removed. For instance, say we take the black walnut (where it will grow), ash, cherry, and yellow birch, all of which are very valuable timber. Plant them 8 by 8 feet apart. Let us then take maples—soft maple or sugar maple—and box elder, and fill up till all is planted 4 by 4 feet apart. Planted all together they will soon cover and shade the ground, will all grow up together to a dense grove, and will, when the maples and elders are taken out (doing which will give a great deal of timber), leave room for the more valuable trees, which in their turn will be taken out when mature. For instance, you will get the cherry in half the time that you would have to wait for the black walnut. Evergreen and larches are planted the same distance apart, but plantations of these are better by themselves. Plantations of this nature will fulfil the previous description.

When the ground is well-prepared and mellow they can be

PLANTED EASILY AND RAPIDLY,

and by persons who have had no previous experience. Two men generally perform the planting, or a man and a boy, the latter holding a bundle of young trees under his arms, take some and stands it in place when the other has opened the ground for it by removing one spadeful of earth. This is then placed again in the cavity, against the root, which is held by the other firmly against the back of the opening. The earth is now pressed against the root with the foot, and the tree is planted. Very few fail to take root. The trees are, of course, small, from one to two feet high, but being grown in nursery beds have generally good roots. Two people plant nearly a thousand a day. The cost of these young trees is small, in large quantities—say twelve thousand—they are quoted here, most of the varieties mentioned mixed, at two

dollars a thousand; and I have no doubt that if a large demand existed, they would also be cheaply obtained in Canada, perhaps can now. In a few years, no part of our farms will pay as well as some acres so planted, counting wood alone. It is surprising how many cords of wood, in mere cuttings, can be taken from a small plantation, while, in yielding shelter and improving the adjacent soil by its retention and distribution of moisture, the advantages would be very great.

Waukegan, Ill., Oct. 25

R. W. PHIPPS.

Letter from Hon. H. G. Joly.

Sir,—I read with much interest Mr. R. W. Phipps' letter published in your issue of the 4th inst., and his description of tree culture in the prairies of the West, noticing especially the great losses entailed by frosts. The protection of young plantations against frost is a question of vital importance to all planters of trees, either fruit or forest trees, in the north, and the windbreaks and hedges recommended by Mr. Phipps are certainly the best protection but it is important to ascertain how they act. The tree planters whose opinion is quoted by Mr. Phipps appear to think that those wind-breaks and hedges protect the trees against the frost by sheltering them from the wind. It is not out of any love of contradiction that I find this explanation insufficient; I think they protect the trees by stopping the snow and causing it to cover the ground at the foot of the trees.

If I may be allowed to quote my own experience, you will perhaps admit that it is more important than would appear at first sight, to ascertain exactly how and why those wind-breaks and hedges

PROTECT THE TREES AGAINST FROST;

in fact, it is the only way to arrive at a reliable system of protection.

Until this summer the experience of the last 12 years appeared to justify the conclusion that the black walnut (whose timber ranks, in commercial value, next to mahogany) can stand even our Quebec winters with impunity. The result of last winter's exceptional severity compels me to speak with less assurance, as it killed about three hundred of my young walnuts which had safely stood the ordeal of several winters. However, I do not regret the recurrence and provide against more serious loss in the future.

When the spring opened those young trees showed no signs of decay. The buds began to swell like those of other trees, a few even opened. It took some time to realize that vegetation was at a standstill within them. The stem and branches looked healthy, the bark fresh, and the underbark green. A few bore marks of sunburn, but the same marks were found on some of the growing trees. I was quite puzzled as long as I looked above ground. It was underground, when digging up the trees, that the explanation was found:

THE BARK OF THE ROOTS WAS ALL MILDEWEED,

burst, and completely separated from the wood, for a depth of from twelve to fourteen inches from the surface of the ground; below that it was quite sound, adhering closely to the roots.

It was evidently the result of frost acting on the water contained in the soil and the roots. But why out of several thousand walnuts, growing on the same soil and with the same conditions of moisture, did we lose only three hundred?

The answer was easily found. All the trees killed by the frost stood in parts of the plantation where the first snow did not remain (as there happened to be no obstacles to prevent its being swept away by the wind) and where the unusually

heavy rains of last December left a coating of ice round the foot of the trees.

The trees growing where fences or hedges arrested the snow and caused it to remain on the ground, escaped, without one single exception, though many were just as much exposed to the force of the wind as those that were killed, as they stood on the same side of the hedge, but where the ground was covered with snow. The snow

PROTECTED THE ROOTS FROM THE FROST.

and prevented the formation of ice round the foot of the trees. Three different plantations, widely apart from one another, and on different soils, gave the same results.

It is easy to cause the snow to remain where it is wanted, especially with willow hedges; they cost next to nothing, just the trouble of sticking the cuttings into the ground, at the proper season, and never fail. Those hedges are as useful in summer as they are in winter. A knowledge of the direction of the prevailing wind will help to place them where they can be most effective in collecting the snow, which I consider as the really protector of young trees against the severity of our winters. It is not too late to try the remedy even now; fence, rails, branches, stones, any temporary obstacle that will arrest the snow would answer the purpose, until the permanent hedges are ready.

We know very little of forest-tree culture here.

We can learn a great deal from the scientific foresters of France and Germany, but we must not lose sight of the difference of climate, laws, and customs between them and us, which will make it necessary for us to modify their system in many instances.

For the present we must look to experience as our teacher; its lessons are useful but somewhat expensive. We can lessen the cost for one another by contributing our little share of experience to the common stock, with the generous help of the press, which has never been refused to the cause of forestry.

H. G. JOLY.

Point Platon, P. Q. Nov. 10.

The Late Leicester, Eng., Cheese Fair.

The pitch was the largest which has been witnessed for the last 15 years; but a more disappointing trade has rarely, if ever, been done. The condition of the cheese, generally speaking, was very unsatisfactory, and the attendance of buyers unusually limited. To the immensity of the pitch, and the small number of buyers present, may partially be ascribed the low rates which prevailed. Early in the morning a choice dairy of Leicestershire cheese was sold by Mr. Harding of Atterton, at 80s. per cwt., to Mr. King of Nottingham; and this is believed to be the highest price realised in the fair. In 1876 the top price reached were 98s. to 100 s. per cwt. Since that time low-priced American cheese has found its way into many households. Most of the choice lots on offer soon found purchasers from 70s. to 71s. 6d., while several other dairies changed hands at 70s. As the day wore on, dairies were disposed of, as quotations fell, from 60s. to 55s. and 50s. per cwt. In the afternoon, prices went for inferior sorts lower still, a few lots going at prices ranging from 35s. to 40s. per cwt. Beyond this, dairymen could no further go; the result being that a larger quantity of cheese has been conveyed home than has been known in recent years, in the hope that higher prices may be obtainable ere long. (1)

(1) Leicester cheese is very superior in quality; in fact, most of it is known as *Stilton*.

A. R. J. F.

Young Beef.

Mr. T. Carrington Smith said as to the question of early maturity, that was one which dovetailed itself into the question of high feeding, and he wished to point out that the price just now of young animals in the market was actually less than that of mature animals—the price of veal and lamb being less per lb. than beef and mutton. He was sure that was nothing more than a free criticism of what Mr. Cheate had said, because Mr. Cheate had been distinctly right in asking them to go in for early maturity, inasmuch as small beef and mutton were at the present worth considerably more than large beef and mutton. He met with a large Shropshire feeder at Preston and asked him how he was getting on with beef-grazing. He said he was doing fairly well by getting his beasts out at two years old. And he (Mr. Smith) had observed that at Birmingham market nice bullocks under two years old and about seven score, a-piece, sold at fully 8d. per lb., while grand fellows of 10 and 11 scores sold in the same market at something like 1½d. a pound less. Then Mr. Cheate had alluded to the question of the value of silage. He thought he might be allowed to correct Mr. Cheate slightly with respect to the statement that Sir John Lawes believed that it was not a wholesome food. He believed that Sir John Lawes had now come to the conclusion that it was a wholesome food, but at the same time he had given expression to a very strong opinion that a great many silos had been made this year at very considerable expense that would never be filled this year. One reason which he gave for this was that it had been so easy to get good hay this season, and another, which was not so gratifying, that we had no clover aftermath in consequence of the dry weather. It seemed to him that it was not at all wise or advisable either for landlords or tenants to lay themselves under a large expenditure on account of silos. He thought that silos were as yet on their trial, so far he had no prejudice either for or against them, but his opinion was that in a season like this the system was of no value at all to us in England.

LIST OF PATENTS relating to Agriculture &c., reported for the *Illustrated Journal of Agriculture*, by *Whitlessy & Wright*, Patent Attorneys, 62½ F. st., Washington, D. C.

Tuesday, Jan. 26, 1886.

Beehive, No. 334,914—M. N. Ward, Violesbury, Mich.
Butter, Making, No. 335,684.—W. A. Murray, Covington, Ky.
Checkrower and Cornplanter, No. 334,846.—J. W. Buffington, Goodnight, Mo. &c., &c.

A NEW FEED GRINDER.

The readers of the "Ill. Journal of Agriculture" will notice in the advertising pages, the cut of a grinding machine, manufactured by Messrs. Jno. A. McMartin & Co. of Montreal. This grinder of a very simple construction, offers many important advantages to the farmers. 1st It grinds every any sort of grain without heating, 2nd It has a regulating attachment, 3rd It never heats the grain, 4th The grinding disks are made to work on both sides, and thus each of the said disks has twice the value and will last double the time of any other disk of other machines. It is claimed to be an article far superior to any of the kind in the market, Messrs. Maitland brothers, the extensive breeders of Kilmarnock, Ont., plainly say that the grinder manufactured by MM. McMartin & Co. is better, more complete, and more economical than any american or canadian grinder they have used before.

S. C.

NON-OFFICIAL PART.

A TERRIBLE CONFESSION.

A PHYSICIAN PRESENTS SOME STARTLING FACTS.

Can It be that the Danger Indicated is Universal.

The following story—which is attracting wide attention from the press—is so remarkable that we cannot excuse ourselves if we do not lay it before our readers entire :

To the Editor of the Rochester (N. Y.) Democrat.

SIR:—On the first day of June, 1881, I lay at my residence in this city surrounded by my friends and waiting for death. Heaven only knows the agony I then endured, for words can never describe it. And yet, if a few years previous any one had told me that I was to be brought so low, and by so terrible a disease, I should have scoffed at the idea. I had always been uncommonly strong and healthy, and weighed over 200 pounds, and hardly knew, in my own experience, what pain or sickness were. Very many people who will read this statement realize at times they are unusually tired and cannot account for it. They feel dull pains in various parts of the body and do not understand why. Or they are exceedingly hungry one day and entirely without appetite the next. This was just the way I felt when the relentless malady which had fastened itself upon me first began. Still I thought nothing of it, that probably I had taken a cold which would soon pass away. Shortly after this I noticed a heavy, and at times neuralgic, pain in one side of my head, but as it would come one day and be gone the next, I paid little attention to it. Then my stomach would get out of order and my food often failed to digest, causing at times great inconvenience. Yet, even as a physician, I did not think that these things meant anything serious. I fancied I was suffering from malaria and doctored myself accordingly. But I got no better. I next noticed a peculiar color and odor about the fluids I was passing—also that there were large quantities one day and very little the next, and that a persistent froth and scum appeared upon the surface, and a sediment settled. And yet I did not realize my danger, for, indeed, seeing these symptoms continually, I finally became accustomed to them, and my suspicion was wholly disarmed by the fact that *I had no pain* in the affected organs or in their vicinity. Why I should have been so blind I cannot understand!

I consulted the best medical skill in the land. I visited all the famed mineral springs in America and traveled from Maine to California. Still I grew worse. No two physicians agreed as to my malady. One said I was troubled with spinal irritation, another, dyspepsia, another, heart disease; another, general debility, another, congestion of the base of the brain; and so on through a long list of common diseases, the symptoms of many of which I really had. In this way several years passed, during which time I was steadily growing worse. My condition had really become pitiable. The slight symptoms I at first experienced were developed into terrible and constant disorders. My weight had been reduced from 202 to 130 pounds. My life was a burden to myself and friends. I could retain no food on my stomach, and lived wholly by injections. I was a living mass of pain. My pulse was uncontrollable. In my agony I frequently fell to the floor and clutched the carpet, and prayed for death! Morphine had little or no effect in deadening the pain. For six days and nights I had the death premonitory hiccoughs constantly! My water was filled with tube casts and albumen. I was struggling with Bright's Disease of the kidneys in its last stages!

While suffering thus I received a call from my pastor, the Rev. Dr. Foote, at that time rector of St. Paul's Episcopal church, of this city. I felt that it was our last interview, but in the course of conversation Dr. Foote detailed to me the

many remarkable cures of cases like my own which had come under his observation. As a practicing physician and a graduate of the schools, I derided the idea of any medicine outside the regular channels being in the least beneficial. So solicitous, however, was Dr. Foote, that I finally promised I would waive my prejudice. I began its use on the first day of June, 1881, and took it according to directions. At first it sickened me; but this I thought was a *good sign* for one in my debilitated condition. I continued to take it; the sickening sensation departed and I was finally able to retain food upon my stomach. In a few days I noticed a decided change for the better, as also did my wife and friends. My hiccoughs ceased and I experienced less pain than formerly. I was so rejoiced at this improved condition that, upon what I had believed but a few days before was my dying bed, I vowed, in the presence of my family and friends, should I recover I would both publicly and privately make known this remedy for the good of humanity, wherever and whenever I had an opportunity, and this letter is in fulfillment of that vow. My improvement was constant from that time, and in less than three months I had gained 26 pounds in flesh, became entirely free from pain and I believe I owe my life and present condition wholly to Warner's safe cure, the remedy which I used.

Since my recovery I have thoroughly re-investigated the subject of kidney difficulties and Bright's disease, and the truths developed are astounding. I therefore state, deliberately, and as a physician, that I believe *more than one-half the death which occur in America are caused by Bright's disease of the kidneys*. This may sound like a rash statement, but I am prepared to verify it fully. Bright's disease has no distinctive features of its own, indeed, it often develops without any pain whatever in the kidneys or their vicinity, but has the symptoms of nearly every other common complaint. Hundreds of people die daily, whose burials are authorized by a physician's certificate as occurring from "Heart Disease," "Apoplexy," "Paralysis," "Spinal Complaint," "Rheumatism," "Pneumonia," and the other common complaints, when in reality it is from Bright's disease of the kidneys. Few physicians, and fewer people, realize the extent of this disease or its dangerous and insidious nature. It steals into the system like a thief, manifests its presence if at all by the commonest symptoms and fastens itself in the constitution before the victim is aware of it. It is nearly as hereditary as consumption, quite as common and fully as fatal. Entire families, inheriting it from their ancestors, have died and yet none of the number knew or realized the mysterious power which was removing them. Instead of common symptoms it often shows none whatever, but brings death suddenly, from convulsion, apoplexy or heart disease.

As one who has suffered, and knows by bitter experience what he says, I implore every one who reads these words not to neglect the slightest symptoms of kidney difficulty. No one can afford to hazard such chances.

I make the foregoing statements based upon facts which I can substantiate to the letter. The welfare of those who may possibly be sufferers such as I was in an ample inducement for me to take the step I have, and if I can successfully warn others from the dangerous path in which I once walked, I am willing to endure all the professional and personal consequences.

J. B. HENION, M. D.

ROCHESTER, N. Y., Dec. 30.

Those who have used the BOSS ZINC and LEATHER COLLAR PADS and ANKLE BOOTS say they are the best and cheapest, because most durable. They will last a life time. Sold by Harness makers on 60 days' trial. DEXTER CURTIS, Madison, Wis.

KNOW THEYSELF, by reading the "Science of Life," the best medical work ever published, for young and middle-aged men.