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# THE ILLUSTRATED JOURNAL OF AGRICULTURE

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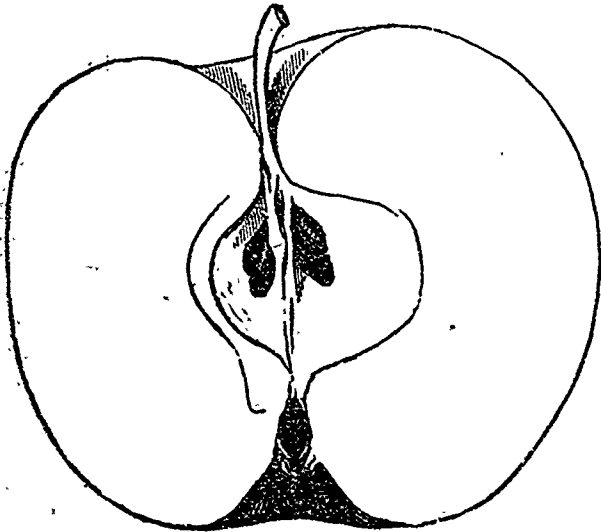
## Fruit Growers' Association of Abbotsford.

This Association held its fourth annual exhibition of fruits, vegetable and flowers on the 24th of September.

Of apples there were upon the tables 402 plates, which, together with twenty-seven of crab apples, made a total of 429 plates. These included about twelve varieties kindly given by friends in Huntingdon County, others being from Montreal, Stanstead, St Hilaire Rougemont, Plattsburg N. Y and elsewhere, making, in all, specimens of over ONE HUNDRED VARIETIES of grafted apples and crab apples — a rare opportunity for the student in apple culture, — an opportunity, too, not neglected; for, at a meeting held not long after, the promising among the newer varieties were examined, their strong and weak points weighed, and their propagation discussed. Of those which had never before appeared on exhibition in the Province, we would mention Scribner's Spitzenburg from Plattsburg, N. Y., — an apple with much of the high flavor, texture and apparent keeping qualities of the true Esopus Spitzenburg, but borne upon a hardier tree.

### OF THE NEWER APPLES.

**WEALTHY.**—First in promise of general usefulness stands this Minnesota seedling, which was described in The Montreal Horticultural Society's first report p. 19. It is of Fameuse

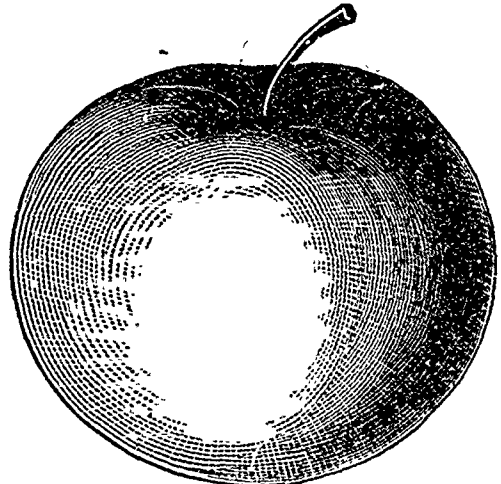


Wealthy.

form, size, and season, and somewhat of Fameuse quality, but borne upon a tree whose hardiness almost equals Duchess, and therefore enabling a choice early winter fruit to be grown where hitherto we should deem it safe to plant but Crabs and Duchess.

**FAMEUSE SUCRÉE;** new we may say even to Montreal, is this delicious little dessert apple, though its pro-

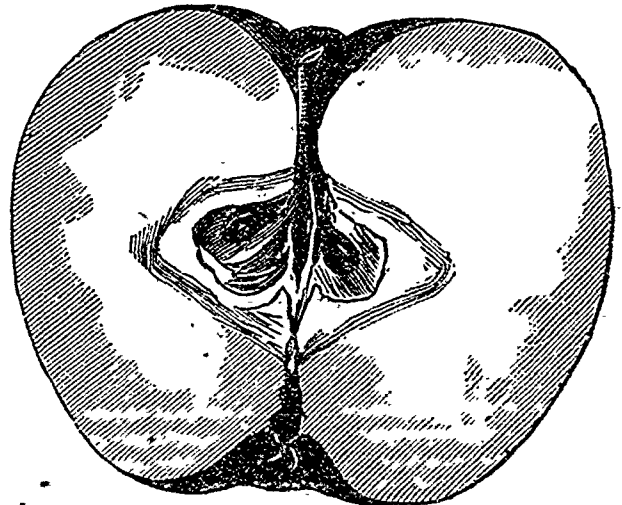
bable place of birth was on the Coteau St. Pierre. It is quite hardy in nursery; its bearing in orchard has been



Fameuse Sucrée.

watched for the last three years at Hon. E. Prudhomme's and it has shown itself to be a good, though not a profuse bearer. Its quality has been highly praised by Dr. Hoskins, of Newport, in the American agricultural press.

**DECARIE,** described M. H. S. report p. 22, is probably a native of the same Coteau, and combines many points of merit. It is a fall fruit, of which we have so many; yet its heavy bearing, its by no means poor quality, its invariable

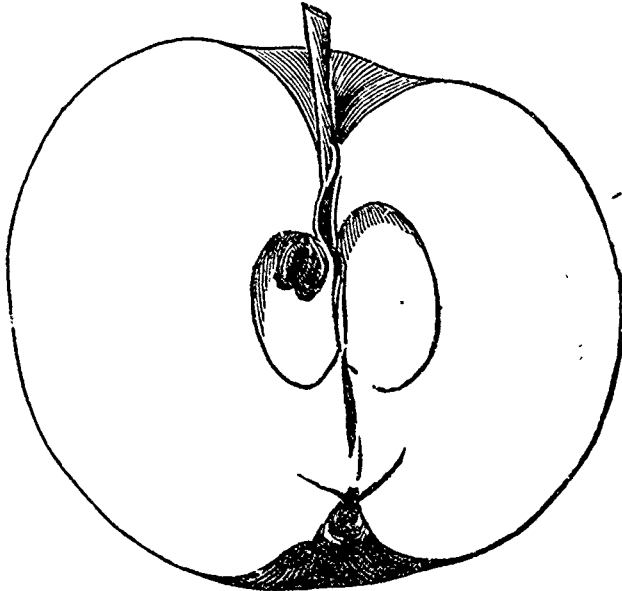


Décarie.

deep color, with that bluish bloom, more suggestive of a Pond's Seedling plum than an apple, will go to show that

this fruit must become a favorite and one that must rank among the profitable, even if not among the favored "five."

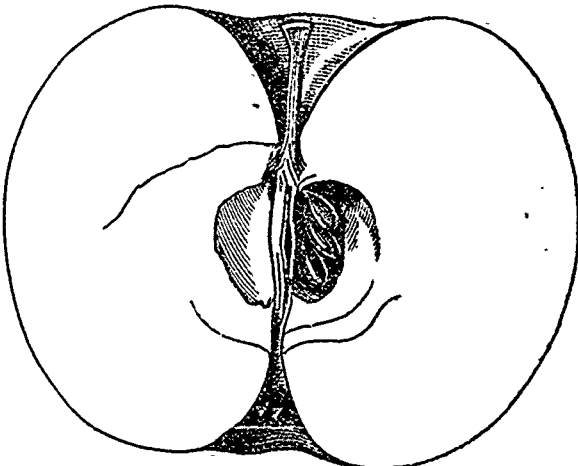
WINTER ST. LAWRENCE (so-called), long ago imported into Montreal under the wrong name of Manks Codlin, and long propagated as such by Mr. Wm. Lunn, has been long and favorably known in Montreal, though new to the south of it. Scions of it were some years ago sent by mistake for



Winter St. Lawrence.

Alexander to Abbotsford, and trees of it sold as such, and were planted into orchard. The mistake is one now not on the whole regretted by those whose trees have attained bearing age. The fruit is of good even size, attractive color, and good quality; it ships well, and keeps till mid-winter, and the hardness of the trees augurs well for a life of length and usefulness.

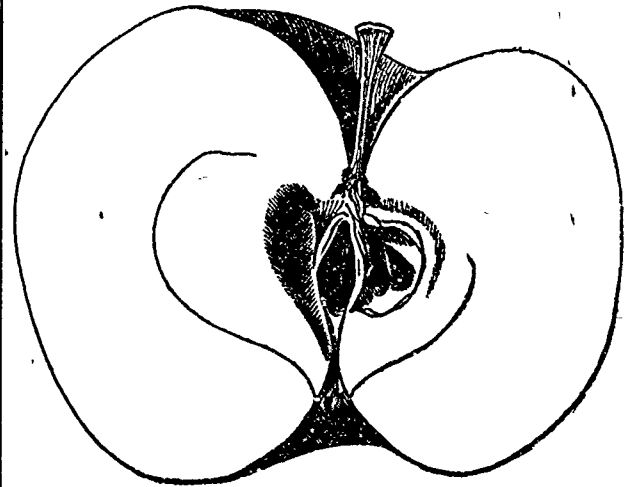
CANADA BALDWIN, described 4th Montreal Horticultural Society's report p. 120, though by no means new here is yet a stranger to many parts where it might prove useful. No bright red, fine quality, good sized, long keeper, can anything like approach it in general satisfactoriness on the



Canada Baldwin.

heavyish soils of North Shefford. Though the early rising of its sap on the warm quick soil of Abbotsford, tending to sun-scald and to premature decay, is that which prevents us from

being loud in our praises in its behalf, we cheerfully commend it for such soils as suit it.



Late Strawberry.

LATE STRAWBERRY (wrongly so called), is described in 4th Report Montreal Horticultural Society, p. 120. Mr. Downing has lately given his decision, that this is not the true "Late or Autumn Strawberry." It is clearly of Strawberry type, not quite equal in flavor, but ever so much larger and more handsome. In quality it is quite good enough for a fruit for family use. Its size and color place it upon our exhibition tables in competition for the "best 5 varieties" and its early productiveness place it among the 5 most profitable as recommended by the Society.

WHITE WINTER COLVILLE (of Abbotsford) was described in 2nd report Montreal Horticultural Society, p. 26. It is a mid winter fruit of medium size and really fine quality. It is very productive, but has the sad fault of being a pale yellow in color. It does not bruise easily, but shows its bruises readily. In spite of this it is placed among the societies "5 best kinds for profit;" and, as a home use apple, its quality and season specially commend it.

VICTORIA - This seedling of St. Hilaire is described in 3rd report Montreal Horticultural Society, p. 117. It was not upon the Society's Exhibition tables, tho' it was sent by Capt. Campbell as part of the Rouville County Collection to Montreal, whither it was forwarded to the Dominion Exhibition at Ottawa. The fruit is of good size and quality and most attractive in colour. The tree we regret to say is not quite as hardy as we should wish. This however can be mainly overcome by top-grafting.

MOUNTAIN BEET is an Abbotsford seedling described in 3rd Montreal Horticultural Society's report p. 118. It is above medium in size, and, in color, often as red as a blood beet, with flesh, too, often deeply stained with red. It bears very heavily every other year, yet is inclined to spot, as does the Fameuse during wet seasons. Though a fall fruit, and therefore a fruit with a host of competitors, it has fetched good prices in the best markets, and may safely be planted for profit.

HAAS OF THE WEST, or GROS POMMIER, as it is also called, is a "Gros Pommier" indeed, being the strongest grower of any apple in the Abbotsford nurseries. The fruit is of medium size and quality only and fairly attractive in color. Whether it will prove as profitable as in the West we have not yet had time to judge, but as a fall fruit for "unfavorable localities" it must prove of positive use.

BEAUTY OF THE WEST (so called) was brought by Mr. Jos. Field from Stanstead. It is a fall fruit of medium

size and attractiveness, but of really fine quality, and should therefore not be lost sight of.

**MILDING** was received a few years ago from Southern New Hampshire, where it is a success. With us the fruit does not color as it should, and the tree in nursery is by no means hardy. In fact we plainly see that we are too far North for it.

**MOUNTAIN TULIP** is another native of Abbotsford. It is an oblong-conic, striped, fall apple, of good quality and one of those heavy biennial croppers which has made us feel that there was money in it.

**LADY'S FINGER** or **GILLIFLOWER** (so called). At the close of the Montreal Horticultural Exhibition, Mr. Boardman, Sec. of No. 2 Ag. Soc. of Huntingdon County kindly offered us anything in their collection that we might wish for. We took 12 plates of apples new to us, and of these this was one. The fruit is largish, often very oblong conic, in fact of Chenango Strawberry form; in color it is a pale waxen yellow, largely over spread with red in minute marblings. It is in fact a striking show apple. But it is more. It has not the enormous core of the true Gilliflower, neither is its quality at all disappointing; of its hardiness and bearing we cannot speak, but hope that our friends in Huntingdon County who have grown it will ere long do so.

**AMERICAN SUMMER PEARMAN**, and **POWELL**, also from Huntingdon County, are two fruits but seldom seen in this Province. They are not showy like the above, but are of the very best quality as dessert apples. Of their hardiness we had doubted, but we should be glad to learn that our doubts were ill-founded.

#### ON THE NEWER CRABS.

**HESPER BLUSH** and **GENERAL GRANT**, both of Minnesota the society intends to exhibit hereafter merely to show their worthlessness, and to prevent their propagation. Of the non-astringent edible crabs—They speak well of **ORANGE** (of Minnesota). Its thin skin, its sprightliness of flavor and freedom from anything like astringency, fit it for a small dessert fruit. They like it, but are not mad in its praises. **GOLDEN SWEET**, (of Wisconsin) is a very nice, thin-skinned little crab that keeps till December. The tree is a model of hardiness, but now and then, not always, the fruit has a tinge of astringency. **MEEDER'S WINTER** (of Minnesota) is a really fine flavored little crab that keeps till Christmas. It has been loudly praised by Dr. Hoskins. **Aiken's Striped Winter** is a nice long keeping little crab, but we hardly see its use.

**GENEVA**, or **LADY ELGIN**, is said to be the finest flavored of the Marengo crabs. It has been spoken of by J. J. Thomas as "immeasurably better than any other crab he ever tasted." The tree is of very slow and slender growth for a crab, and not of extra hardiness, the fruit is pretty and it is nice and free from astringency, but in our praises we must be moderate.

**BAHEY'S CRIMSON** is of medium size for a crab, but it combines the lovely deep rich color of a Hyslop with really fine quality. The tree, too, we have seen at Plattsburg, N. Y., and have found it hardy, vigorous in growth, and productive.

Especially as a home use crab do we think very highly of this variety.

**SOULARD** is the most villainously astringent, acrid compound ever named crab. In the West it was highly praised. It was said to cook like a quince, to be in fact the "Quince of the North." Oh, how widely do human beings differ, even on the qualities of a crab!

#### OF OUT DOOR GRAPES.

There were 52 plates and 33 (!) different varieties: an assortment never before anything like equalled in this Pro-

vince. Of this we must speak at length and in a future issue.

Such was the collection gathered on the eve of the exhibition, but next morning, alas, heavy droning rain almost prevented the very office beaters from being at their posts of duty. In fact, several who would have been among the chief prize winners in fruits, in flowers, and in vegetables, and whose collections were packed and ready for shipment, were unable to attend, and reports now clearly show from localities from sixteen to twenty-five miles distant, and in one case from a village thirty miles distant, where large preparation of attendance had been made that, had weather permitted, the crowd gathered would have been very far in excess of the 2,000 assembled last year.

That such an interest should be manifested in the exhibit of a local society is a point that merits our closest attention. It shows a lively interest in horticulture, that only needs to be organized, to show its power for good. It points directly to a great, but as yet unsupplied want in this Province; that of a system of local horticultural societies, upon which we copy the following from our last report:

"Until 1877 no moneys were appropriated in this Province for purely horticultural purposes. The Montreal Horticultural Society up to that time was enabled to draw her annual grant of \$328 only as the Montreal Agricultural and Horticultural Society, and by offering certain prizes for agricultural products.

"In 1877, however, the Montreal Society became a Provincial Society, with a yearly grant of \$1,000 for horticultural purposes only, the Government also providing for the publication of its reports: and the action of the Council of Agriculture, since then, shows its earnest desire to advance horticulture in all possible localities.

"Let us see what has been done in this matter by our sister province, Ontario. In 1877 she had twenty-five local horticultural societies, besides the societies in the larger cities of Toronto, Hamilton, and Kingston, eight of which local societies received from their provincial treasury the sum of \$1,750, besides certain municipal grants. There was paid in prizes in 1877 for fruits, \$491; for flowers, \$944; and for vegetables, \$544, making a total of \$1,979 paid in prizes by fifteen of these local societies for horticultural purposes, and the reason that there are not larger, and a still larger number of these horticultural societies is due to the fact that the Electoral Division and Township Agricultural Societies enter largely into the Horticultural field. These Agricultural Societies paid that year in prizes for fruits, \$3,669; for flowers, \$1,651, for garden vegetables (field root crops not included), \$2,408, making a total of \$7,728 spent by these Agricultural Societies upon the fruits of Horticulture. To this let us add \$1,343 paid at the Provincial Agricultural Exhibition for like purposes, and we have the sum of \$9,071 expended by the Agricultural Societies, or the total sum of \$11,094 paid by the Agricultural and Horticultural Societies for Horticultural premiums.

"Let us see what has been done in our Province. First, the Montreal Agricultural and Horticultural Societies paid in 1877 for premiums for fruit, \$114, flowers, \$457; vegetables, \$82; making a total of \$653 expended for Horticultural purposes.

"Next as to local societies. Until the organization of the Missisquoi Horticultural Society, in April, 1879, we were alone one of a system whose co-workers were as yet uncreated. Our Association paid in prizes in 1877 but \$26, for our 132 entries! a mere crown of wild olive; "It would have been gold had not Jupiter been so poor." Yet with a prize list open to all, with exhibition free, and competition to non-members for the nominal sum of 50 cents, with large, but

short-lived debts, this voluntary Association has drawn large and distant competition, and has gathered crowds of 2,000 persons, largely from distant counties, even with this paltry prize list, showing that it is not to ourselves only that we are a want supplied.

"Of County Agricultural Societies, however, we have a complete organization. In 1874 we had eighty-one societies, with a membership then of 12,537, probably now much larger, subscribing over \$25,316, and receiving from our Provincial Government about \$38,775, or sixty-five per cent. of the amount received by the Electoral Division Societies in Ontario. But they do but to a very limited extent enter into the Horticultural field.

"In 1877 these county agricultural societies paid in prizes for fruits about \$104; orchards, \$111. In flowers, \$106 is all we find noted. Of this, the No. 1 Agricultural Society of Huntingdon paid in floral premiums the sum of \$95.45: an amount which reflects great credit upon the Society and also upon the long and valued services of its ex-President, Mr. Daniel Brims. As to vegetables, it is sometimes hard to define between the garden and field, let us say \$544, Gardens, \$93, making a total of \$966 paid by these county agricultural societies for horticultural premiums. To this we can add nothing from our Provincial Agricultural Society, for, in making out the prize list, it was forgotten that Flora and Pomona were among our tutelary deities. To the County Agricultural Society expenditure add that of the Horticultural Societies, and we have as the total amount paid in 1877 by the Agricultural and Horticultural Societies of Quebec the sum of \$1,645 as compared with \$11,094 in Ontario.

"Our Horticultural needs are—

"1. Hearty co-operation from the County Agricultural Societies.

"2. Distinct and independent organization of Local Horticultural Societies for localities whose needs cannot be reached by Agricultural co-operation."

One other horticultural need we must draw attention to.

We find upon the tables at Abbotsford fruit from the counties of Hochelaga, Huntingdon, Vaudreuil, Stanstead, as well as from Vermont and New York; and among that grown at Abbotsford are new apples or crabs, natives of Minnesota, Illinois, Wisconsin, Iowa, N. Hampshire, Vermont, New York and (indirectly) Russia, introduced for the purpose of experimenting. Such work is not merely useful, it is necessary to fair progress. It, however, needs organization, and upon this we again quote from our last report:—

"May we point to a yet further, because a pressing want? Our position in the "cold north" is a peculiar one, not favorable to horticulture. Our list of "tree fruits" is incomplete, and has many blanks. Whence are these blanks to be filled?

"(i)—From our seedling orchards, of which we have a large extent.

"(ii)—From our isothermic lines, both to the east and west, not excepting Russia.

"The Department of Agriculture at Washington (for our good, rather than their own, we should suppose), received about ten years ago, from St. Petersburg, scions of several hundred varieties of apples, though not all natives of Russia. Many of these are now being tested by Dr. Hoskins, of Newport, Vt., who will faithfully report upon their merits as they fruit.

"A. G. Tuttle, of Baraboo, Wis., a few years ago received from the United States Consul at Moscow 150 varieties of Russian apples, and, we believe, some Russian pears. Ellwanger & Barry have imported largely, we know not how many; at any rate, 31 kinds. The Iowa State Experimental Sta-

tion, under Prof. Budd, at Ames, received not long ago 200 varieties of apples from Russia, and were expecting 200 more.

"Now shall we profit by all this costly importation from the home of the Duchess, the Astrachan, and the Alexander, or shall we not? Let us decide. Let us clearly see our course. If our decision be in the negative let us at least know the cost of our inaction. If otherwise, let us with least cost accomplish the greatest and speediest results.

"This importation from our isothermics is of far more relative value to us than to the United States. In fair play we should claim the right of paying our friends in the States half the cost of all this work, so directly is it to our advantage.

"There is a way, however, in which we can make a partial repayment—a northern testing ground. Such would be of use to their North as well as to ourselves.

"In Ontario, no such work has been done, because less necessary. The similarity of her climate to the adjoining States, whereby they all become unconscious workers in a common cause, the describing of new fruits in the monthly and in the yearly reports of her Provincial Fruit Growers' Association, and the distribution of certain trees and plants to her widely scattered members, as well as the healthy state of her nursery trade, and the general leaven of experimenting that pervades her people, all go to make this, our great need, to her but a minor want.

"This testing of new fruit trees, new timber and ornamental trees, is to us a necessity to fair progress, on account of our peculiar position in the North. "It is a great work left undone," but a work not great in cost. The cost is but an investment for our own welfare. It is, however, a work that needs organization, organization having a controlling centre, and that centre a landowner. We need an experimental station."

With a system of Local Horticultural Societies, and with an organized system of experimenting, horticulture and fruit growing would gradually assume the æsthetic and commercial importance which it has in our sister States and Provinces.

### New Process of making Cheese and Butter.

The air is full of novelties. One would have thought that the *centrifugal milk separator* was enough to satisfy the most ardent admirer of ingenious contrivances in aid of the hardworked dairy-maid; but now a voice is heard, this time from Germany, which promises to spare, for the future, all labour in the manufacture of butter and cheese; these articles being engaged to submit themselves to the wand of a new magician, whose delicate touch will henceforth compel them to extract themselves from their liquid matrix, while their old-time tormenter is, I dare not say asleep, for we all know that the "fermière" never sleeps, but attending to other matters no less important to the well-being of her family.

We all know that, if a quantity of cream wrapped in several folds of cloth be buried in the ground, at the end of 20 or 30 hours the water will be found to have left the cream, and the solid particles remaining, well washed to expel the casein will give a remarkably pure, well-flavoured butter. The weight of earth resting on the enveloped cream is the active agent in this change; a change gentle, and slow, like all the operations of the great Mother.

Again, if milk is coagulated by the use of *rennet*, or by allowing it to turn itself by the formation of *lactic acid*; a mass is found gathered together in the surrounding whey, which mass, being dried by pressure, is cheese. These facts have been laid hold of by a German lady who, following out her investigations on the true principles of induction, has

contrived a machine by which butter and cheese may be almost said to make themselves. In butter making, the cream is put into clean linen bags, surrounded by two or three folds of coarse canvas. No pressure is employed for the first 12 hours; then weights are gradually applied in increased proportions until, at the end of the second day, the sack is opened, and the pure butter is found freed from all the butter-milk. The manufacture of cheese can be conducted on the same plan but the ultimate pressure must be greater. The most perfect cleanliness must be observed in this as in every other process connected with the dairy.

The inventrix of this method, after having submitted the products of her ingenuity to the inspection of Messrs Luss, Brandt and Na-vrocki, of Berlin, believes that she has a right to state that the gain in butter is 10 oyo, and 20 oyo to 25 oyo in cheese; c. g.

Milk to one pound of cheese.

Ordinary method.		Zieman's method
Jan. 1878, monthly average	6 lit. 7 $\frac{1}{10}$	4 lit. 7 $\frac{1}{10}$
March — “ “	6	4.5
April — “ “	6	4 $\frac{3}{4}$
May — “ “	6 $\frac{1}{2}$	4.3

One pound of butter.

Jan. 1878, monthly average	17 lit. $\frac{3}{4}$	12 $\frac{3}{4}$
March — “ “	16 $\frac{1}{2}$	12 $\frac{1}{2}$
April — “ “	16 $\frac{1}{2}$	11 $\frac{5}{8}$
May — “ “	16 $\frac{3}{8}$	11 $\frac{5}{8}$

Dr Petri has analysed the butter and the butter-milk, which test confirms the practical results of the Zieman process.

Analysis of butter-milk.

	Old way.	Zieman's way.
Water,	94.21	91.78
Albumen,	2.5	3.75
Milk sugar,	1.30	2.60
Fat,	1.75	1.03
Lactic acid,	0.25	0.30
Ash,	0.44	0.44
	100.00	100.00

Butter.

Water,	15.07	9.76
Fat,	82.17	88.91
Albumen,	1.72	0.48
Milk sugar,	0.42	0.30
Ash,	0.62	0.55
	100.00	100.00 (1)

If we consider that it is the object of the butter-maker to get rid of as much of the albumen and lactic acid, as possible, these matters being destructive to the keeping properties of the product, and to retain as much as possible of the fat and milk sugar; we shall see that the Zieman process is eminently qualified to obtain the desired end. There is also a diminution in the quantity of water retained, its place being occupied by the fat; but the grand point, practically, is the expulsion of an extra 1.24 oyo of albumen. This is the substance that plays the mischief with all our butters, giving them the cheesy smell and taste, and, like all matters containing nitrogen (2) rendering them liable to every des-

(1) The "litre" is to the Imperial quart as 61 is to 67.

(2) Commonly called "Protein compounds." Proteus was a sea-god of inferior rank who kept the sea-calves (seals?) of Neptune:

"Omne cum Proteus pennis egit altos  
- Visere montes;"

as our frier Horace says. He was, like Mr. Weller's friend the "red faced Nixon," gifted with the power of prophecy; but was so averse to exercising his power that he would not open his lips

cription of change on the least provocation. In this, the Zieman process seems equal to the old Devons hire plan of heating the milk after a certain number of hours of repose from the time of milking. I may as well give a description of this latter process, as I am anxious to have it tried by private individuals, feeling convinced that it gives less trouble, requires fewer utensils, and produces butter which is superior in flavour and in keeping qualities, to any other in use.

The pans for milk intended to be treated after the Devonshire fashion, should be made of the strongest tin. They may hold from two and a half to three gallons, and the top should be considerably wider than the bottom, say in the proportion of three to two. The milk must be strained into these vessels, and remain in the coolest possible place in summer, unmoved, unshaken, until the cream has risen. Thirty-six hours in winter will be the outside time necessary; less if the temperature be kept at about 50° F.; and, in summer, the greatest care must be taken that not even the smallest acetification take place; sixteen hours, however, will be the average safe time. If the milk curdle, farewell to all hopes of butter. We are now ready to heat the milk; on the stove, in this country, but a "water-bath" would be preferable. Place the pans carefully, without shaking, on the top of the stove, which should be only moderately warm to start with, and very gradually, raise the temperature. A ring will shortly be seen to form on the cream; this ring, which will be of the same size as the bottom of the pan, should be carefully watched. In a short time it will swell and thicken, and, as the milk approaches the boiling point, the whole cream will present a rough, blistered appearance, the colour will become more or less orange-brown according to the richness of the milk, and the pan must be gently removed to the dairy to cool. If the ring break, which it will do if the heat exceed 210° F., the cream will mix with the milk, and the batch will be in a great measure ruined. Great care should be taken to raise the fire by degrees, as otherwise the butter will have a "fire-fang" flavour. If these hints are sedulously attended to, I guarantee perfect success on the first attempt.

When cool, the "scalded," or "clouted," or "clotted" cream may be taken off in an almost solid cake; delicious indeed when eaten with apple tart (*very few* cloves in a muslin bag, and *no* lemon peel, if your please!) or any other arrangement of fresh or preserved fruit, but the oleaginous particles render it unfit for tea or coffee. How long does this cream take to churn? I have done it in 45 seconds—it has never taken 3 minutes. The way is this; put the cream into any vessel and stir it round with the hand, or, if that is considered objectionable, with a spoon or wooden spatula. The butter forms in small grains—there is hardly any buttermilk, and what there is will be very superior to ordinary new milk. Put the grains, when come, into cold water, and wash carefully, finishing the process as you would in the ordinary way.

The reason why this butter will keep good 24 hours longer than that made in any other way, seems to me to be that, as albumen is the main cause of butter spoiling, and as albumen coagulates at a temperature much below boiling point (212° F.) the enemy is deprived of his power in the first instance by heat, and, subsequently, owing to the granular form of the butter when submitted to the influence of cold water, is eliminated from the mass, the butter remaining a nearly pure compound of water, sugar and fat, with a trifling per centage of ash (mineral matter); thus the lactic acid, having nothing to act upon, sulkily stays behind, a mere "caput mortuum" incapable of offence.

except under compulsion, to avoid which he used to transform himself into various shapes, and give those who wished to consult him as much trouble as a refractory "gamin" before a police magistrate.

The small particles that may be observed floating in the water employed to wash the butter are the albumen which in the ordinary process is never got rid of.

As to the quality of the Devonshire butter, I can only say that, when I had charge of a large Collegiate establishment in the Townships, the Trustees blamed me very much for giving such "superb butter to the students, it ought to have been sold and the ordinary butter bought for them!" *valeat quantum!* I had always made the butter in the Devonshire way.

ARTHUR R. JENNER FUST.

**British Agriculture and Colonial Development.**

British farmers have had a hard experience, and have now resolved to cease farming on the old conditions. A year ago when a great economist and financier drew attention to his country's future and the possibilities awaiting "Our Kin beyond the Sea" his views were assailed as unpatriotic and visionary; betraying want of faith in the vitality of his mother land, and altogether unsupported by facts. More than a year has passed since Mr. Gladstone's article appeared and the condition of England is worse to-day than it was when it was written. It is of course true there is some revival in the metals trades of the Country but it is not of a kind to justify enterprise nor of a degree that leaves hope that it will lead to the employment of a larger staff. For three years work, have not been running full time and in the cotton trades half and third time has been resorted to that the hands might exist. In the mines the short hour shift has been in operation, and the new orders that have been taken will be mainly executed from stocks. In the steel department the new process of manufactures will materially reduce the number of hands employed. Add to this the five bad harvests, and the last worst than either of the preceding, and the picture is deplorable. Low freights, and abundant importations of foreign grown produce short crops of low quality, realizing reduced values with rents stationary and working expenses tending to increase will seriously affect English farming in the future unless a great and radical change takes place.

An English contemporary making its annual harvest enquiry this year three weeks later than usual, and then a fortnight too soon, arrived at the following results.

**HARVEST RETURNS 1879.**

1879	Wheat	Barley	Oats	Beans	Peas
Over average	3	9	58	10	7
Average	69	103	169	66	61
Under average	220	180	68	145	130
Totals	292	292	295	221	193

Reducing these figures to percentage numbers with those of previous years we have the following table.

**PERCENTAGE RETURNS OF HARVEST 1879.**

1879	Wheat	Barley	Oats	Beans	Peas
Over average	1	4	20	4½	4
Average	24	85	57	29½	37
Under average	75	61	23	66	69
Totals	100	100	100	100	100

**HARVEST RETURNS 1878.**

1878	Wheat	Barley	Oats	Beans	Peas
Over average	24	14	22	7	6
Average	58	43	50	63	55
Under average	18	43	28	30	39
Totals	100	100	100	100	100

1877	Wheat	Barley	Oats	Beans	Peas
Over average	3½	10	23	12	8
Average	24½	50	49	69	61
Under average	71½	40	28	19	31
Totals	100	100	100	100	100
1876	Wheat	Barley	Oats	Beans	Peas
Over average	12	12	15	12	22
Average	48	54	20	44	67
Under average	40	34	65	44	11
Totals	100	100	100	100	100

Although no account of the Potato crop is published, enough is known of it to warrant us in regarding it as a failure. It may be objected that these figures are small and the area of enquiry limited, but for the purpose of the argument they are all the more effective. They cover a wide area of country and every variety of soil and come from well to do and high class farmers.

Early in May Dr. J. B. Lawas the great chemist and experimentalist of Rothamsted lectured the farmers of Berwick-upon-weed. The subject of the address being "Is higher farming a remedy for lower prices." The lecturer argued "Supposing there were a permanent reduction in the price of the saleable produce of the farm to the extent of 20 0/10 would the proper remedy be to increase our produce per acre by one fourth, and so to bring up the saleable value to the same amount as before? The speaker continued describing "high farming," and then chose the following example to illustrate a successful practice of high farming showing the commercial result when values decline.

**WHEAT.**

Moderate and littoral manuring.	Per acre.	
	Bus. grain.	Straw cwt.
Complex mineral manure and 200 lbs. Ammonia salts.	24½	22½
Complex mineral manure and 400 lbs. Ammonia salts	33½	33½
Complex mineral manure and 600 lbs. Ammonia salts.	36½	40½

**BARLEY.**

Superphosphate and 200 lbs. Ammonia salts.	45½	28½
Superphosphate and 400 lbs. Ammonia salts.	49½	34

By an increase of the first 200 lbs. of salts i. e. 400 lbs. give an increase of nearly 9 Bus.

But the addition of a third 200 lbs. gives only 3½ increase; the cost of the salts being 2½ per lb. 4½ c. would reach 36 s. or 9 while the wheat at 1 d. or 2 c. would give only \$1.20 per Bus or for the 3½ extra \$4.20. Thus if when 400 lbs. of salts were used the grain sold at \$1.44 and its value falls to \$1.20 there must of necessity arise a double loss.

In Great Britain the area under cultivation two years ago was 47,000,000 acres and estimated to produce an average of £1 an acre or £188,900,000. The accumulated losses of fire, bad harvests, and the great reduction of values, place all calculations of the loss beyond the reach of possibility. It is quite safe to state that for two years past (taking the average estimate) no rent has been earned and neither has the cost of manures been recouped, while the additional crops of weeds grown during the bad seasons have necessitated a greater outlay for labour with most unfavourable opportunities for field work. Rent and taxes have not been permanently reduced, and the abundant harvests on this continent cannot enhance the demand for home grown cereals. For sixty years ending 1870 the average increase of the population was 20 0/10 and the increased value of assessed property 200 0/10

The textile districts increased in population 69 0/10 and in property 362 0/10; the industrial districts in population 29 0/10 and in property 215 0/10 while the agricultural population increased only 12 0/10 and the assessed property 83 0/10; it may be fairly assumed that this increase was largely the results of tenants, improvements. It is neither want of fertile soil, nor cheap labour to work it, neither can it be that science has refused her bounty to the tiller of the soil. There is abundance of good land, labour in plenty, and engineering science and skill has given a countless variety of implements that do farm work in a very short time at prices which place them within every farmer's reach. The investigations of the chemist are daily adding new stores of knowledge to agricultural science; all quarters of the globe yield pyrites and phosphates for conversion into artificial manures. The enterprising and experienced manufacturing chemists every year add new facts to our knowledge of the fertilization and nutrition of plants. Nevertheless, at this moment, farming in Great Britain is the most unremunerative business in the country. Farms are every day going out of cultivation for tenants cannot be found at reduced rents. In every market town the question of the future is one of absorbing interest and is debated with a vigour hitherto unknown to rural life. All are agreed that occupation under present circumstances must cease, but there is not equal agreement as to how farming in the old country can be made to pay again under the present régime. Many are looking beyond the old shores for homesteads, some to the England of the Pacific, others to Canada; here English landlords decide their future the farmers plan will have matured, and next spring many may be expected to come here on the recommendations of the Agricultural deputies from the several counties of Britain. The tide of emigration has already begun; and the country that gets most will be that one which offers the highest bids. There has already been formed large land companies in England for settling the Australian colonies. Canada might well ask for a share of the money seeking investment in such enterprises. For many years the stream of emigration on this continent will be to the north-west of this Dominion. There could be no better use for idle capital than an appropriation for colonizing new lands. Such investments would be free from the objections urged against further loans to public works. Canada has undertaken the construction of a longer line of railway than any of the sister colonies, and will now need to create a traffic for the road. The rapid progress already made, and the renewed engray which the bountiful harvest has awakened in those having charge of the work, promise to complete the road earlier than the most sanguine have anticipated. No new work of greater utility and profit could succeed it than the settlement of the lands along its line of route.

#### THE BEST BREEDS.

Under the above heading, *The Prairie Farmer* gives a brief but very suggestive article from which we extract such parts as will prove useful here, as well as in the West. We are afraid that several of our own breeders still think that they can have a single breed which will excel in both productions — excellent beef and plenty of rich milk. This is not possible, as the perfect adaptability to one necessarily precludes the other. This is self evident to any one who compares attentively the shape and form of the better animals in either class.

It would therefore appear to us more rational to keep two distinct breeds on the farm, wherever the production of the best beef as well as of rich milk, in quantity, are aimed at. It is very true that some strains of Short-horns, as well as the Holsteins, will produce both meat and milk—in pretty

large quantities too; but the question is whether they can produce either as economically as would special breeds.

It must not be forgotten that the whole of the efforts of the best breeders, for a century and more, have tended to bring out the meat producing points in meat animals, and the milk producing, in dairy cattle. In order to unite these points again in the same animal the work of a century of careful experimenting must be undone, and then the result must necessarily be a retrograde movement.

**THE BEST BREEDS.** — Who knows what they are? Not those who believe that an animal may combine perfect milking qualities, with great flow of milk, producing large quantities of both cheese and butter, and when unfit for milking, turn out a maximum quality of first class beef, especially in the prime joints. That is the loin, the round, and the roasting pieces. The beef animal is in fact entirely different in its make up from those adapted to the dairy purposes: several distinct breeds have entirely distinct characteristics. Thus Jerseys are noted for the richness of their milk, well adapted to butter-making. The Holstein for the large flow of good milk adapted to cheese making. The first is a small breed, the other a large one, and it must be confessed that the latter come nearer to making a good weight of fair beef than any other dairy breed. The Ayrshires are medium in size, and give a good flow of fairly rich milk. The Jerseys will do well on rich hill pastures, so will the Ayrshires. The Holsteins do best on flush pastures. Hence their rising popularity in the West.

Of beef breeds many families of Short-horns, among them notably some of the "seventeens," — that is descendants of the American importation of 1817 — are deep milkers, are also excellent and heavy beef animals, but do not mature quite so quickly as some of the more fashionable modern families. Among the Duchesses are good milkers, but the Short-horns, as a class, are not milking animals, nor can they be made so except at a loss of essential beef points. Whether the Short-horns be wanted for milk, beef, or both, they require flush pasture, and plenty of it, and good shelter in winter.

The Herefords are essentially beef cattle. They do not mature so early as the Short-horns, but so far as we have seen, open better. That is they are very superior for the butcher's block. Heavy muscular cattle, with plenty of meat in the prime parts. The Devons are the best butcher's cattle so far as quality of beef is concerned, of any of the improved breeds. First class butchers will pay a higher price, for a ripe, well fattened Devon steer than for any other of our first class breeds. In England only one class of cattle bring more in the Smithfield market; that is the Scotch or West Highland cattle. (1)

(1). I should rather say "Scotch polled, and the West Highland Cattle." A. R. J. F.

#### The Guenon System.

For the last 22 years we have had many occasion of testing the Guenon system for the selection of milch cows by the milk escutcheon which consists in a double band of hair, between the thighs running upwards, instead of downwards. The system as given by its author, appears to us uselessly complicated. However, we would never purchase a milch cow without a careful examination of the size and height of the escutcheon: the higher it extends and the broader it is, the better the milking qualities will be. There are also several well known marks by which a good milker is known. But most of these marks can only be seen when the cow is in milk. The milk mirror, on the other hand, may be seen on a bull calf as well as on a new born heifer. Where stock is raised mainly for milk, the bull should be selected from the best milk stock, and the milk mirror on the bull will, in most cases, be an indication of milking qualities in the stock produced.



### Crows and Corn.

Mr. James Howard, of the Agricultural implements Works, Bedford, England, has, after many experiments, succeeded in discovering a "steep," which protects seed of all sorts from the attacks of birds. The recipe for its manufacture is as follows:

"For 8 bushels of grain, take half a pint (Imperial measure) of coal-tar, 2 pounds of blue vitriol, and 2 gallons of boiling water. The quantities must be carefully measured, and not guessed at. The coal tar should be as thick as good molasses (treacle). Put the tar into a pail, pour on it half the water, and mix well. Skim off the greasy matter which rises to the top, and, in the mean time, let the remaining water be stirred up with the vitriol, and, when the two lots are thoroughly amalgamated, mix them together in another vessel, and pour them over the grain. The thick matter which will be found at the bottom of the pail, should not be disturbed, as it will render the grain difficult of distribution. The heap of wheat, &c., should be turned over several times, and well worked up from the bottom to assure a perfect mixture."

This treatment has been practised at Clapham Park for several years with perfect success, not a "Bird-boy" has been employed, nor a gun fired in any of the fields, and yet the gram has "braided" superbly. A lazy foreman once omitted its use, thinking to save himself trouble; but the ravages of some hundreds of rooks on a large field of barley as it was coming up, detected the omission, and taught him a lesson he will not easily forget. A. R. J. F.

### Yield of Cows in milk.

Cows vary, as is well known, very much in the quantities of milk they give, and in the richness of their milk.

Henry Stephens mentions a cow, half-bred Shorthorn and Galloway: that gave 45 (imperial) quarts a day; equal to 54 wine quarts. Mr. Pigot found that 120 lbs of milk gave on an average, 60 ounces of butter.

Mr. Willis', of Bedale, cow Eleanor (Shorthorn Herd-book. x. p. 315) produced:

	lbs. oz.
A. D. 1851, at 3 years old, from 1 week's cream,	18. 0 butter
" 1854, at 7 "	21. 4 "
" 1857, at 9 "	1st week after calving, 24. 0 "
" " " "	2nd " " " 24. 8 "

16 ounces to the pound.

The large "Yorkshire Shorthorns" that supply London with milk give, for the first few months after calving, from 20 to 30 imperial quarts of fairly good milk. They have, per day, each, one bushel of brewers grains, one bushel of turnips, and as much as they can eat of good aftermath meadow hay. The turnips are given *immediately* after milking, a small piece of saltpetre being placed in the pail, and no taste of the turnip is perceptible to the severest judge. Milk sells for (or used in my time) from five pence to six pence a quart, and the best cream brings six shillings a quart; a pretty good price, as a quart of cream will make a pound of butter only. In this country brewers' grains are worth more than in England for two reasons—because the malt will not *melt* in the mash-tun, and because the brewers, particularly in the small towns, do not understand the art of extraction. Grains here are well worth the price paid for them. (generally 10 cts. a bushel), but no more than half a bushel should be given to each cow a day. The rootlets of the malt (cummins) should be worth twice the price of grains. They are rich in nitrogen, and suitable for growing stock of all kinds. The sweepings of the malt-kilns are valuable for manure, but the quantity obtained is small. A. R. J. F.

The English dairy farmers get immense returns from their grass lands by free use of bone manure. One Cheshire farmer says that by this he can feed forty cows from land that formerly gave him product sufficient to feed only twenty. The English farmers believe in "boning," the grass land especially. *Exchange*.

Yes, but the writer should have mentioned that, except in Cheshire and a few farms immediately adjoining that county, bones do not pay for their cost on grass land; a ton, which is the usual dressing, costing about \$27.

A Montreal paper, the other day, in its agricultural columns, stated that several New-York dairymen fed their dry cows on three quarts of corn-meal a day, without hay, straw or any other food. I should like to know how they thrive under this treatment; considering that an ordinary lean beast eats, as a general rule, and without troubling his digestion, 50 lbs of turnips and 20 lbs. of straw, and finds that little enough, without a calf inside him to support. Three quarts of corn-meal would not supply the necessary fuel. A. R. J. F.

**Insects named.**—The insects sent from Chelsea have been received in good condition, and there is as no difficulty in recognising them at first sight, since they are very common here also. They belong to the genus *Haltica*, modernly termed *Systema*. The genus *Systema*, so called by *Chevrolet*, consists of no less than 13 species, all existing at this time on our continent.

The species sent is the *Systema frontalis*, Fabricius, or the *systema* with a reddish forehead, so called from its having a reddish-brown forehead, while all the rest of the head and body is black. The *Haltica* are *coleopterous*, and, in consequence, have regular jaws, so that they gnaw the leaves of the plants on which they feed, instead of merely puncturing them, as do the *fleas*, when imbibing their juices.

Besides having wings, they possess the power of jumping to a considerable distance, and, in consequence, are provided with very muscular thighs to their hinder legs.

The *Haltica* in question is about one line in length. It is found on beans (haricots?) peas, turnips, potatoes, &c. It is common enough here, but does not do much harm. The easiest way to destroy them is to cover a piece of board with pitch, or thick treacle, and pass it along the rows of turnips, &c; the insects will jump on to the board, and sticking to the pitch, or treacle, can be destroyed by crushing them.

The terrible *Dibolia areca*, Melsheimer, is the most destructive of all the *Haltica*. Though smaller than the *Systema*, it often entirely devours whole crops of turnips, cabbages, radishes, &c. the very moment they appear above ground. (1)

L'ABBÉ PROVANCHER.

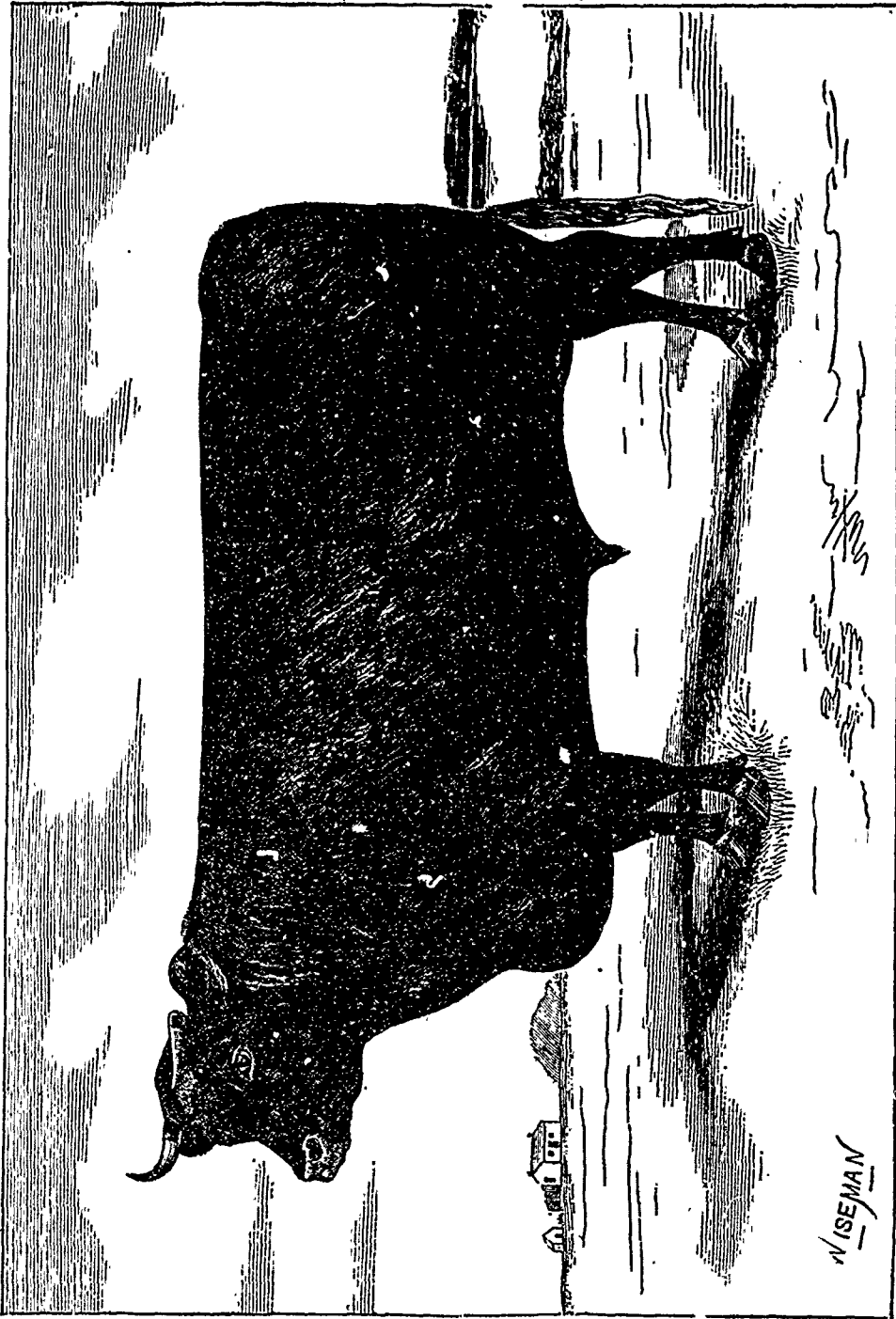
### VETERINARY DEPARTMENT.

Under the direction of D. McEachran, F. R. C. V. S., Principal of the Montreal Veterinary College, and Inspector of Stock for the Canadian Government.

#### Feeding Cattle.

A consideration of the digestive organs of the ox, and especially of the process of rumination is essential to the intelligent understanding of the principles of feeding cattle profitably. Thus it teaches us among other things the necessity of mixing coarse food, such as chopped hay, with concentrated food, such as ground corn, linseed cake, cotton cake, or oatmeal. We have seen that all the fluids and finer portions of the food pass almost immediately into the third and fourth stomachs. Concentrated food, whether given moist or dry, when swallowed is rendered almost fluid by the admixture of

(1) Is this the *Haltica Nemorum*? A. R. J. F.



FIRST PRIZE FOUR YEARS OLD SHORTHORN STEER AT CHICAGO FAT STOCK SHOW, 1879.

a large quantity of saliva in the mouth; Consequently, unless it be mixed with coarse food requiring remastication (rumination), it is not so thoroughly digested and a considerable amount of nutritive material is unabsorbed and consequently lost.

We learn too from a study of the digestive process in cattle, that a free supply of water is necessary for the thorough digestion of the food, and the maintenance of a healthy condition of the digestive organs. When the water supply is deficient the contents of the Stomach become dry, digestion is slower and more imperfect, besides it is apt to lead to impaction of the leaves of the third compartment.

*Food of animals by Dr. R. D. Thompson.*—It has been a subject of discussion with physiologists whether the chyle or incipient blood is taken up in the small intestines. Upon this question it appears that no small degree of light may be thrown by a consideration of some circumstances in the feeding of cattle which are sufficiently striking. As cows are continually feeding during the whole day, it can rarely happen that the stomach can be in any other condition than in that of engorgement, and yet the amount of water which an animal will swallow at a single draught is more than sufficient to fill the whole of the cavities of the stomach, supposing them to be empty. The following table will show the quantity of water swallowed by two cows on different occasions. The animals were placed in the weighing machine and the weight noted; they were then allowed to satisfy their thirst, and their weight was again taken.

BROWN COW.

		Weight.		
Food.		Before drinking.	After drinking.	Water swallowed
		lbs.	lbs.	lbs.
Augt. 12	Barley, molasses, and hay. }	1010.....	1038.....	28
" 19	Malt and hay.....	998½.....	1041.....	42½
" 29	" ".....	1023½.....	1048½.....	25
Sept. 4	Barley, linseed, and hay. }	991.....	1055.....	63

WHITE COW.

		Weight.		
Food.		Before drinking.	After drinking.	Water swallowed
		lbs.	lbs.	lbs.
Augt. 12	Barley, molasses, and hay. }	1052.....	1106.....	54
" 26	Malt and hay.....	1029.....	1051.....	23
Sept. 4	Barley, linseed, and hay. }	1056.....	1104.....	48
" 13	Beans and hay.....	1060.....	1087.....	27

It will be observed that in the fourth experiment with the brown cow, the animal swallowed at one draught sixty-three pounds weight of water, or nearly six gallons. Now it is evident that in these trials the water must have passed thorough the stomach into the intestines; this observation is supported by Sir Benjamin Brodie, Bell, Coleman and others. Of course it will readily be understood that animals fed on succulent grass will require less water in proportion to the quantity of water contained in their food; but the whole study of the digestive organs in cattle show that a large quantity of fluid is necessary to thorough digestion. From this we infer that, as in the natural, so in the artificial feeding, cattle should have their food in a moist condition. We learn also from this that the stomach and its appendages are principally *digestive* in their functions, the intestines furnishing the absorptive surface. "The fact of the intestines, espe-

cially the large ones, serving as a kind of reservoir for the large quantities of fluid carried into the intestinal canal, may serve also to explain the action of saline purgatives. It would appear, that when dissolved in large quantities of water, they are carried at once to the intestines which they stimulate, increasing the peristaltic motion, and thus encouraging a more intimate mixture of the aqueous and solid contents of the gut."

This fact also explains the reason why medicines should always be given to cattle in the fluid form, as the solid consistence and bulk of a bolus would lead to its passing in to the paunch, where its physiological action would be lost in the great mass of vegetable matter that sac usually contains.

**Fat Stock at Chicago.**—We took notice in our last number of the Fat Stock Show lately held at Chicago. We now reproduce from the *National Live Stock Journal* the beautiful Short Horn Steers which took 1st prizes in their respective classes.

**The Food of Animals and feeding.**

The functions of the digestive organs being toprehend, masticate and insalivate, swallow and digest the food, so as to present it in the form of chyle ready to be absorbed and carried into the blood, thence to the tissues for assimilation, the food provided to these organs must necessarily contains the substances which enter into the organization of these animals; hence we conclude that the elements of animal tissues and fluids pre-exist in vegetables, which also contain the earthy phosphate that forms so important a constituent of bone.

The food of herbivorous animals must, therefore, always contain and in fact always does contain, four essential principles which by their combination, or reunion, constitute nutritious matter properly so called: 1st an azotized matter such as albumen, casein, gluten, substance which are probably the original of flesh. 2nd an oily or fatty matter, which approaches more or less closely to fatty bodies in general. 3rd a substance having a ternary composition, sugar, gum, fecula. 4th certain salts, particularly phosphates of lime, magnesia, and iron. This mixed constitution which a forage plant must needs offer justifies the general ideas propounded by Dr. Prout on Nutrition. This able chemist has said that "milk was to be viewed as the standard food and that all alimentary matters must resemble it in composition in a greater or less degree: that is to say, besides phosphates, food must contain an azotized principle, and a fatty body to stand in lieu of casein, sugar, and butter." (*Boussingault.*)

So many different circumstances operate in lessening or increasing the amount of azotized constituents in plants, viz gluten and albumen; that it is often difficult to determine the amounts of these contained in them without a great deal of trouble. The experiments of Majendie have shown that substances which do not contain these elements, such as sugar, starch, oil, will not support life, and on the other hand, it is ascertained that the quality of alimentary matter, flour for example, increases with the amount of gluten which it contains; and it is because the seeds of the leguminous vegetables are richer in azotized principles—that is, in *flesh*—that they are also more highly nutritious than the seeds of the cereals."

Before we can proceed to the subject proper of feeding stock, a knowledge more or less perfect of the different substances which form the articles of diet for cattle is necessary, on this subject I must make use of the experiments and labours of those who have specially investigated these matters.

Hay being the most common, or universally used kind of fodder, being in fact the staple food of most of our farm animals, may serve as the standard of comparison for all other kinds of food or forage.



FIRST PRIZE THREE YEARS OLD SHORTHORN STEER AT CHICAGO FAT STOCK SHOW, 1879.

Hay, as it is generally used, contains from 11 to 12 per cent of water, which is got rid of by thorough drying; and, as albumen, casein, and vegetable gluten contain 16 per cent of azote, we perceive that the azotized matter which is the representation of flesh in hay may be represented by the number of 2 per cent. Hay does not indeed always contain so much azote; that which is grown on marshy lands contains much less, and again, there are samples which contains more; after-math, or second crop hay, is certainly more nutritious than first crop hay.

After-math hay gave .....	2 . 0	per cent Azote
A choice sample of the best hay...	1 . 29	" "
The flower or ear containing little		
woody stem .....	2 . 1	" "

Those examples show that, when an animal is to be put upon another kind of food than hay it is very necessary to take the quality of the latter article which has been employed into account.

## POULTRY DEPARTMENT.

*Under the direction of Dr Andres, Beaver Hall, Montreal.*

### Indigestion in Fowls.

A reader writes to say that he has lost several fine Partridge Cochins fowls from a disease which he describes as follows: "The food remains in the crop where it putrefies. The crop itself becoming tainted. At first they are constantly making efforts to force the food from the crop to the stomach, they then become dull and reduced in flesh and die. This disease is contagious and was brought into my fowl house, by one of my neighbors' hens, who has also suffered very much from the ravages of this disease. Many of my friends also say that they have been victimized in the same way."

We answer, first. The disease is indigestion which may arise from bad food, damp, unhealthy, and badly ventilated quarters. Undigested food stopping in the crop, whether dry or liquid, will cause aggravated swelling and distention, and operates disastrously upon the crop, stomach, and intestines. The contents of the crop, may become hard and cakey, or puffy and watery.

The disease is, at this stage, often only slight and temporary, working itself off without much trouble, on removing all food for a day or so, and keeping in a dry and quiet place. We have used the following treatment in our own case of a favorite fowl with success.

The contents of the crop were hard, and the crop itself much distended. We administered one teaspoonful of sweet-oil every morning and gradually working the crop with the hand until the contents became soft giving no hard food whatever, in the afternoon giving a little milk; after three days a teaspoonful of sherry was given for three days, in the middle of the day; in a week the bird was let out to a grass run as well as ever, and, fed on soft food for a day or two, rapidly gained in flesh.

In many instances however the fowl becomes "crop bound" after a while, and the contents of the crop grow harder and harder, the receptacle itself swelling until it must be relieved of the sodden load or the bird will die.

The remedy for this difficulty is simple, but must be applied carefully. Let one person hold the bird, then make a horizontal incision in the outer skin of the swollen crop about two inches long, the contents may be turned out slowly and carefully until they are all removed.

Then with a sharp fine needle and white silk or linen thread stitch up the wound. The relief will be instantaneous. The bird should be fed sparingly for a week on soft, cooked

food, giving but little to drink, and, if properly cared, for it will generally recover.

"Indigestion frequently causes inflammation of the gizzard and liver, and the bowels becomes constipated in consequence. But it generally acts quite the contrary, and diarrhea or dysentery is the result.

In the latter case, the character of the difficulty is readily seen in the frequency and nature of the abdominal discharges; white and streaked yellow thin matter is voided. The bird rapidly loses flesh and becomes weak and dull, and in a few days the disordered intestines are highly inflamed. If attended to in time these discharges may be arrested without much trouble.

The disease may have been engendered by eating too much green food, which becomes acid and ferments in the crop or stomach sometimes; or it may have been caused by being exposed to wet and cold, or bad food, such as damaged grain, or being compelled to peck for food among manure heaps and drinking impure water.

Change the food immediately. Give liquids sparingly, and only such as contain the tincture of Iron or Red Pepper. Give a few grains of Gregory's powder (say 10 grs.) mixed with mashed, boiled pearl-barley, adding a little common pepper.

Other stronger remedies have been advised, but, when the fowl becomes so prostrated as to require them, we have but little faith in their virtue.

Indigestion will cause dysentery, diarrhea, constipation, cramps. Inflated crop, in fact, is the foundation of general diseases of the internal organs.

We strongly urge great care in feeding and properly arranged fowl houses, sheltering your birds at all seasons, as a preservative against all diseases to which fowl are subject.

### Pedigree Breeding.

From our last remarks upon this subject, it will be readily understood that the one necessary point in forming any "strain" of animals is to keep definite objects *steadily* in view, and to choose generation after generation in reference to them, accumulating all the tendencies to transmission into the desired channel, and taking care that no step gained is *lost* by dropping any subsequent link in the succession. But in this course we are confronted almost at once by two difficulties.

The first is, that it is impossible to follow out such a methodical system without very considerable *in-breeding*. It is always found, practically, that a man who is buying stock constantly to cross with, can never breed well; and the considerations we have briefly sketched explain the reason why. He is constantly introducing into his strain tendencies which he knows little of; which he can, therefore, take no account of, and which crop out in the most unexpected manner. Hence very much harm to good breeding (as regards true show or "fancy" points) has been done by the stress laid in some works upon the necessity for constantly importing "fresh blood." No successful exhibitor—or at least no one such who *breeds* the specimens with which he wins—ever acts on such a system, but depends chiefly upon successive generations of his own stock. But, on the other hand, it is soon found that this course too has its limits, and is bounded by the physical weakness and deterioration which result from too close breeding of the same strain. This may be carried far further than the one class of teachers are willing to allow, without any appreciable injury; but on the other hand there are limits which cannot be passed, and which place, as we have said, great difficulties in the breeder's way. The amount of difficulty, however, *varies* a great deal with the object in view; and this we wish particularly to point out, since it appears hitherto to have been overlooked.

The most extreme case of close breeding on record is perhaps that of certain celebrated families of Shorthorns. Avoiding modern examples, for personal reasons, it will be sufficient to mention the old bull *Favourite*. This celebrated animal was bred with his dam, his sister, his daughter, his granddaughter, and even his great granddaughter, besides other relatives produced from more collateral crosses. The result of such successive breeding, from a first-class or typical animal, is what we may for convenience term a *concentration* of the "blood," or tendencies to transmission; which gave a bull of this stook a most marvellous power of stamping his peculiarities upon his progeny; and the same is true of the best Shorthorn families of the present day. The breeder or owner of such a family dreads a cross above all things, even with one of the best families of alien blood; and Mr. Booth stated to Mr. Carr, as the fruits of such experiments on his part, "The result of the last three crosses upon which I ventured—namely, *Water King*, *Exquisite*, and *Lord Stanly*—has made me distrust the policy of any further step in that direction; nor have the results I have witnessed of the experiments of crossing animals of my blood with the most fashionable bulls of other strains, tended in any instance to remove that distrust." But along with this desired effect of the close breeding to which we refer comes physical weakness, shown in many instances by sterility, which is notoriously common in modern Shorthorn herds that are closely bred; and in others, by difficult parturition, or the death of many animals.

Now, such effects as this would be fatal to a strain of poultry, in which close breeding must be stopped long before it produces such evils; and it is important to see why there is this difference. The reason lies in two facts, the first of which is that the Shorthorn is mainly bred for qualities of what we may call a *constitutional* character; and the second, that the physical degeneracy caused by close breeding is almost always entirely removed by one thorough cross. Hence the highly-bred Shorthorn bull, though he may be nearly sterile when bred with his own family, is no such thing when employed in *what he is bred for*, viz., the stamping the valuable features of his race, concentrated in him by close breeding, upon an inferior and more or less alien race of cows. There his good qualities alone remain, and the evils disappear in the cross or change of blood. But in a race of fowls or pigeons, which are bred for some pattern of feather or other purely "fancy" points, such a cross with ordinary alien stock is inadmissible. In this case the cross at once *destroys* all the creature is bred for, the feather or other point being at once lost. Hence, in producing such properties, close breeding can never be carried so far as to produce evils of this class, but must be modified so as to prevent them. And this brings us to our second difficulty, which is closely related to, if not identical with, the considerations with which we closed on the last occasion of treating this interesting subject. It is that of developing not one only, but *all* the various points which the breeder or fancier has in view. This, accordingly, we will endeavour next to consider. *Exchange.*

### About Turkeys.

Fanny Field, writing in the *Prairie Farmer*, gives the following interesting advice and experience in the raising of turkeys:

The cold rains during the month of May and fore part of June wrought sad havoc among the young turks. I know of several flocks of forty or more that have dwindled down to less than a dozen. I have been very fortunate with mine, and of course I feel like crowing over my success. From seventy-

two eggs set I had sixty-seven young turkeys; a thievish cat gobbled two of them, but I have lost none from exposure to cold and damp. One day I was caught napping, and my turkeys were caught in the rain. I didn't wait for the rain to cease, but donned my waterproof and rubber boots, and, assisted by the hired man, drove the mother hens to the shelter of their respective coops. Part of the young turks were well feathered up, and consequently were out of harm's way, so I did not trouble myself about them further than to give them a good warm feed with a sprinkling of red pepper in it; but seventeen of the youngest were pretty thoroughly soaked. "Past all hope of resurrection," said the hired man as he carried the chilled turks into the kitchen, and life did seem to be almost extinct in most of them; but I resolved to experiment on them. I put a piece of comfort on the bottom of the stove oven, laid my turks on it, covered them with a piece of an old wool blanket, partly closed the oven doors, stirred up the fire and waited. In a short time there was a commotion under the blanket; I lifted it and three little turks hopped out on the floor apparently as well as ever; the rest were kicking and gasping a little, so I gave them a little more air, and covered them up again. In less than two hours the entire lot were as lively as crickets. I fed them, and put them out with the other hens with an injunction to keep in out of the wet for the future.

Now I want to tell you about my turkey shed; it is my own idea and I feel quite proud of it. For three years past so many young turkeys died during spells of cold, damp weather that it really seemed as if the whole flock would go. Of course I kept them shut up in their coops, but the coops would get foul and damp: then the turkeys would begin to drop off by ones and by twos, by sixes and by sevens, until pleasant weather came and we could move and clean the coops.

My shed is twenty feet long, eight feet wide, seven feet high in front, four in the rear, rough boarded up and down, with the cracks battened, shed roof shingled, for whatever else I may be deluded into having, I never will have anything for a roof that is not shingled with honest shingles that will keep water out for twenty years. There is a large window in each end of the shed, and a rolling door in front with another window in that; there is no board floor; the floor is made of nearly a foot of sand and gravel. Along the rear of this shed there is a row of slat coops for confining the mother hens; these coops are of different shapes and sizes so that each hen knows her own coop, and, when let out in pleasant weather, always returns at night to her own domicile. For the first ten days or two weeks after hatching, I kept the hens confined all the time; at the end of that time the young turks were doing finely, the hens had become accustomed to their quarters, and, after the dew was off in the morning, the door was rolled back, a slat of the coops let down, and hens and young turks given free range until night. Previous to allowing the hens their liberty, I had, on pleasant days, rolled back the door, and allowed the turkeys to go out on the grass. On rainy days the door was kept closed, and inside it was perfectly dry. I have noticed that when a turkey-hen runs at large with her brood, she changes her roosting place every night, so I took the hint and every day the coops are moved, the droppings scraped off, a little fresh sand thrown on, and the coop put back in its place. This makes a little work of course, but it is cheaper than to hatch turkeys and have one-half of them die on your hands.

Under the window in one end of the shed is a box or bin, that will hold about three barrels; this is kept filled with sand for use about the coops. The team can be backed up to the window, the window opened (it slides back) and the sand shoveled in with very little trouble. Under the opposite

window is a bin of similar size for holding the scrapings from under the coops, outside is a trap door for convenience in removing the contents of the bin.

### Poultry in France.

No nation devotes so much attention to poultry as France. fowls are treated there as an important branch of farm economy, and made to contribute largely to the profits of the farmer. A French journal avers that France keeps about 45,000,000 hens, producing 3,000,000,000 eggs. It is estimated that the annual value of fowls killed is \$30,000,000 and the value of the eggs \$36,000,000.

England alone receives more than 80,000,000 eggs annually from France. It is an accepted fact in France that the ovary of the hen is not renewed, that is, that the hen can lay so many eggs during her life and no more.

A longer or shorter period may elapse before she will lay these eggs, according to the treatment she receives. If she is badly fed and poorly housed, four or five years are required: if on the other hand, she is highly fed and kept warm, her eggs will be developed more rapidly and in quicker succession.

The hen, for egg-producing, must be treated as a machine. Fine eggs, collected daily and sent to market while undoubtedly fresh, command a high price, especially in autumn and winter.

The brown varieties sell in the London markets at fifty cents per dozen, and great difficulty is experienced in obtaining a sufficient supply.

In France scarcely a meal is complete without chicken in some form; poultry feeding is therefore a great business, and magnificent fowls are reared. The secret of this excellence is that the animals are fed from the day they are hatched, and not allowed to hunt for a living as on most of our farms. The consequence is that at three or four months old a good chicken is ready for the table, and at six or seven it has become a fine, heavy fowl, and fit for the poultry show.

*N. Y. Evening Post.*

### Douglas Mixture.

We often have occasion to refer to this mixture in speaking of poultry diet and treatment of diseases.

We give the formula for its preparation as follows: Put 8 ounces of sulphate of iron (common copperas) and one half fluid ounce of sulphuric Acid, into a large jug, or glass jar, or bottle, and add to it one gallon of water, as soon as the iron is dissolved the preparation is ready for use.

It is one of the best tonics used for poultry. It is alterative as well as tonic, and possesses, besides, antiseptic properties which make it a remedy as well as a tonic. The recipe was furnished us by the editor of the *Fanciers' Journal* two or three years ago, and we have found it good. The mixture of these ingredients is easily done, and they are easily obtained. Be careful not to spill the acid upon the hands or clothing, as it will burn the skin, and destroy the garment it touches.

### EGGS IN WINTER.

A correspondent of the *Massachusetts Ploughman*, who has been very successful in the poultry line, writes in the middle of January. "I depend on sound wheat for eggs in winter; something better than wheat screenings. I give as much wheat and shorts, with a little cayenne pepper, mixed hot, the first thing in the winter morning, as will be eaten at the time. Then a good supply of wheat, scattered in chaff or old hay, to be scratched out during the day. And, if the weather is cold, corn is given at night. At any other time, if it is bad feed, from lack of nitrogen and albumen, if eggs are wanted. Scrapings from the table, bits of bone, pounded, unburnt, refuse meat,—in shorts, leavings, animal and vegetable, all come in play, and are richly repaid in eggs. Pure water is given daily, and a constant supply of ground oyster shells

is kept at hand. If hens of the right breed,—I prefer the pure white Leghorn,—have proper food and water, quite a warm sunny house, absolute cleanliness and freedom from vermin, they will be tame, healthy, and profitable. My flock of twenty-two white Leghorn pullets, began to lay in the latter part of November, and during the past seven days they have laid one hundred and seven eggs, or an average of 15.27 per day, in mid-winter with the thermometer varying from two to fifty degrees, the highest number laid in one day being nineteen and the lowest fourteen eggs."

### Killing and dressing Poultry.

Carelessness in killing and dressing poultry is sure to make a great difference in the net profits. We know of two lots of fowls, of about the same age and size, and both lots equally fine in plumpness, and one lot brought three cents per pound more than the other lot, and sold off as soon as exposed for sale. As the lot weighed about two hundred and fifty to three hundred pounds each, it can readily be seen whether it paid to exercise care in killing and dressing. Buyers in our large markets are always willing, and even anxious, to pay for anything which looks nice and inviting, even if it is not improved in quality thereby. As they are ready to pay their cash for "style" in this respect farmers should pander to their tastes, and thus secure the ever ready cash.

One great mistake made in the onset is to kill the fowls, or chicks, when they have full crops. This should not be done, for as soon as the dead bird is cold the skin will turn blue and dark immediately over and around the crop, giving it a very uninviting appearance. If you intend to kill birds to-morrow, give them only a moderate feed this eve, and none at all the following morn, by which means the crops will be contracted sufficiently to prevent any discoloration of the skin.

In killing, attach a loop of strong twine to a convenient hook about five feet from the ground. Fasten the legs of the fowl in this loop and lock the wings loosely and carefully. Now take the head of the bird in the left hand the comb towards the palm of the hand, and with a sharp small bladed knife, sever the arteries which centre at the roof of the mouth just back of the tongue, and the bird will quickly bleed to death. As soon as the feathers commence to "fall" showing the bird to be dead, hand it over to the picker and kill another one. The bird should be immediately picked, and picked dry, too, scalding invariably ruining the appearance. The picking should be done by taking but few feathers at a time in the hand, and removing them with a quick movement, which can soon be acquired by practice. The fine feathers are kept separate from the coarse wing and tail ones, the former being used in beds and pillows, and the latter thrown on the manure pile.

As soon as the birds are picked—do not ever "sing" those intended for market—hang them up in a cool, airy place, where they should be left to remain until all the animal heat has entirely left the body.

For this reason it is best not to pack poultry for shipment, especially to a distance, the same day it has been killed, for it will take several hours for the animal heat to become thoroughly dissipated.

When you are sure the birds are cold through, take the box you intend to ship in hundred pound packages, or those holding not over two hundred pounds are best—cover the bottom with clean muslin, and then lay in the birds as neatly and closely as you can pack them, for if packed loosely they will be sure to get bruised with the rough handling they are sure to get while on the transit. A neglect of this important item accounts for the damaged appearance which so much poultry presents when opened for sale, and this necessarily makes a wide difference in the profits.

Some time before (a couple of weeks or so) or some time after the Christmas holidays is a much better time, as a rule, to market poultry, to get a good price, than during the holidays when so many tons are rushed into the market, only to find a slow sale and low prices.—D. Z. EVANS JR., in *American Poultry Journal*.

### Winter "Fixins" &c.

As our feathered pets need good care in order to be profitable and "a joy forever," I will tell your many readers how I have prepared for my fowls for the coming winter, in the way of supplies. I topped and bladed a lot of cornfodder while it was perfectly green and cured it well in the sun, being careful that it had

no rain upon it; when well cured, I put it in the barn loft to use through the winter.

Those who have never seen a lot of fowls in the winter time, "putting themselves outside" a sheaf of corn fodder, cannot tell how very well they relish such "roughness". I have laid in a large supply of old lime plaster, and also decaying oyster or muscle shells, and have a box full of fine road dust put in dry for the fowls to wallow in when the weather becomes so inclement that they cannot enjoy this luxury out of doors. A load of gravel will be placed within reach of the birds, and forest leaves, gathered and saved for the purpose, will be frequently strewn over the floor of the poultry house, and screenings of wheat will be scattered among the leaves for the fowls to scratch after, and thus they will find pleasure in this useful and natural exercise.

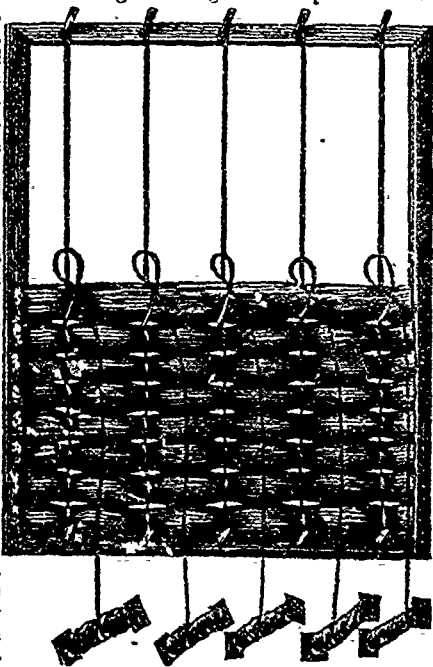
Give the birds plenty to do, and feather-eating will be much less frequent. Principal food in winter will be corn: but cabbage, turnips, and boiled potatoes, &c., will be served frequently; onions too will be fed occasionally, and all the tid-bits obtainable shall go in the bill of fare. A warm well ventilated house, and plenty of good, pure water, I shall not forget are essential to the comfort and health of my feathered family.—J. R. BAKER, in the *American Poultry Journal*.

## GLEANINGS FROM THE AGRICULTURAL PRESS.

### HOW TO MAKE STRAW MATS.

Every body who has had any experience with cold-frames and hot beds knows how useful straw mats are as a protection against frost. Not only are they much more easily handled than straw or hay, but they keep out the cold better, and the surroundings can be kept more tidy. Nor are they useful as a covering for sashes alone, there are many occasions on the farm when straw mats are more handy for covering things than any things else, as, for instance, to throw over a heap of potatoes, if the cellar should not be quite frost proof, or for lining the inside of a cold stable, and the like. To bind straw mats, the first thing to be provided is the frame. It may be nailed together of three-inch wide strips of a one-inch thick board, and it should be of a size that will suit the purpose for which the mats are to be used. For hot-beds the mats should be at least a foot longer than the sashes they cover, so as to overhang a little at both ends. Mats about seven feet long and four feet wide, are as large as can be conveniently handled. At each end of the frame, put in five or six pegs according to its width, and to these tie the strings serving as "warp" on which the mat is bound. To each bottom peg, tie also a cord wound on a "spool," as shown in the engraving, and the operation of binding can commence.

Now take a small lock of clean, straight, rye straw, and, turning the butts outward, make the first knot on the outside cord, by putting the spool above the straw and around the cord, as shown in the cut. Next, take a similar lock and, in the same manner tie that to the cord on the other side of the frame, and then, keeping the tops straight in the middle of the mat, the remaining knots are tied. The process is very simple and, once started, there is no variation till the mat is completed. The cord used should be tarred hemp twine, as it will last longer



than if not tarred. Straw mats properly made, not too roughly handled, and spread out to dry whenever they have become wet, will last three winters as a covering for hot-beds.

### Anti-Self-Sucking Device.

Prof. Sheldon says, in *Dairy Farming*, that the nose-piece, herein illustrated, effectually cured a cow of his of a persistent habit she had acquired of sucking herself. Various other devices for the same purpose had been vainly tried previously; but where they failed, this succeeded completely. It was made out of a piece of oak board, eight inches long, five inches wide, and about a quarter of an inch thick, and was shaped as shown in the cut, fig. 1. The cow's nostril was sprung or bent until the piece fitted, as seen in the fig. 2. Again and again the cow tried to get one of her teats into her mouth, but all to no purpose, for the nose-piece, hanging down, always came between her mouth and the teats. At length she gave it up in disgust, and went on grazing. The device formed no obstacle to her eating, as it floated over the grass without being any detriment whatever.

In making such a nose-piece, care must be taken not to make the two points of it too far asunder, as it would then easily slip off the nose. The points should be about half an inch apart, and nicely smoothed and rounded off, so that they will not hurt the cow.

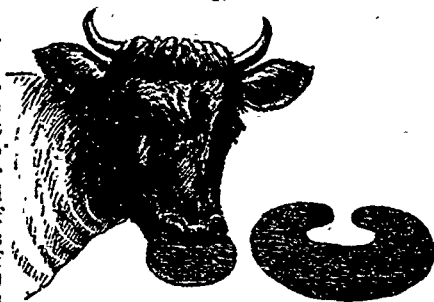
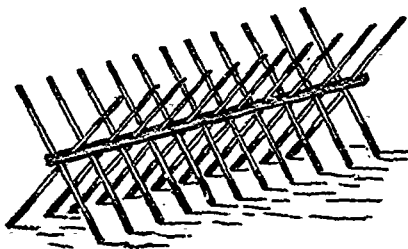


FIG. 2.

FIG. 1.

THE ROLLING HURDLE common in England, and used to a considerable extent in this country, is made somewhat like the old revolving hay-rake. Each is 12 feet long and made of stout poles bored with two series of holes 12 inches apart. Stakes six feet long are put into these holes, so that they project from them three feet on each side of the pole. One row of the holes is bored at right angles to the direction of the other, and when the stakes are all properly placed they form a hurdle, the end of which looks somewhat like the letter X. The engraving shows how the hurdles

are made. In using them a row is placed across the field, a strip of any desirable width being set off, upon which the sheep feed. After they have eaten up all the herbage on this strip and all they can reach by putting their heads through the hurdles, the latter are turned over exposing another strip of forage, and so on. By using two rows, the sheep may be kept in a narrow strip between them. By this means the droppings of the sheep are very evenly spread over the field, which is very richly fertilized by them. When the crop to be eaten off is a heavy one of clover, rye or other herbage, it is sometimes mowed and thrown on top of the hurdles, which then act as a rack, or pitched inside them. This may be made a valuable way of improving run down land, or, indeed, any other sort of land. A much longer iron hurdle has also been lately introduced, built fence-shape, with two wheels attached to a horizontal cross-piece at each end. As this is very durable, it would be the cheapest, perhaps in the end. Mr. Mechi, the well-known English farmer, uses them, and in England their employment has been extending since their introduction, half a dozen years ago.

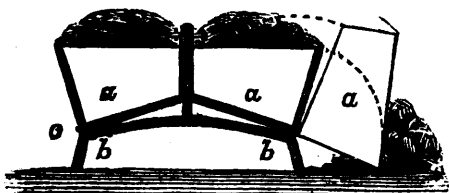


### An Easy-Dumping Sled.

Our readers sometimes ask for illustrations of home-made farm implements which they can themselves construct during the winter



months, when there is but little else to be done on the farm. Besides being inexpensive such implements often have merits that may be looked for in vain in shop-made goods. We here present an easy-dumping sled that is especially suitable for drawing manure, sand and the like, and which any body handy with tools can make. A rear view is seen of the sled in fig. 1. Instead of one, there are two boxes, a, a, each of which is hinged to the corresponding runner.



To bring the center of gravity nearer the outside and thus facilitate the dumping, the boxes stand on inclined planes and also flare outward. At a, on the extreme right, is shown the position of a box when dumped. It is easily turned back again, and a bolt is passed through the two adjoining sides of the boxes to hold them together, or this may be done with a hook. The two runners, b, b, can be made of any durable hard wood but to make the sled run lighter, they should be shod with iron.

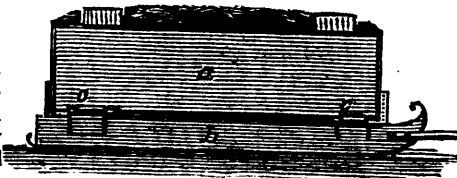
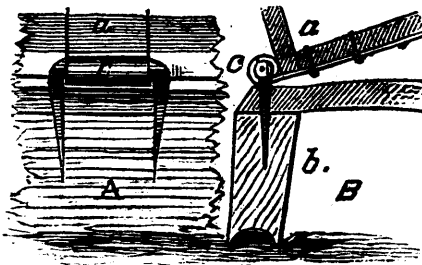


Fig II gives a side view of the sled, and in fig. III is shown the manner of hinging the boxes more in detail. A is a side view, showing how the staples are driven into the runners, and B gives an end view of the same, showing how the hinge is fastened to the bottom of the boxes, thus serving to strengthen the bottom at the same time. (Rural New-Yorker).



**A Model.**—You will always find a successful farmer on the alert for facts that have a bearing on his pursuits. It doesn't make much difference how or where he picks them up, but he is determined to know all that is new, and he profits by it. This kind of a farmer is more than a mere laborer, he reads and converses with men of intelligence. He studies, thinks and plans before going into any new enterprise. He pursues the same course as any other successful business man. He seeks to buy the best, and in the cheapest market, manages to sell in the highest market, and very seldom fails to get the best prices. This farmer looks ahead and by aid of his current information knows when to sell or hold his property.—*The Minnesota Farmer.*

**THE SECOND ANNUAL GRAND EXHIBITION** of the Montreal Poultry, Dog and Pet Association will be held at Montreal, Wednesday, Thursday and Friday, 4th, 5th, 6th February, A. D. 1880. Entries for competition will positively close on Thursday, Jan. 20. All entries must be made upon the "Association's Regular Printed Forms," which with a neatly printed book containing full list of prizes offered in the various classes, also rules governing the Exhibition and any other necessary information can had free upon application to the Association's Secretary as below. Through the liberality of some friends we are enabled (independent of the large number of cash prizes set down in our regular list for competition) to offer a number of handsome special premiums in the different classes, a complete list of which however, (not being ready when our regular book of prizes, &c., went to press), will be issued in the form of a Supplement to some and at early date. The very decided success of the Association's First Exhibition held at Montreal November 6th 7th and 8th, 1878, is most noteworthy, there having been no less than 799 Entries made, representing of 1,086 Specimens; of Dogs, 211; of Pigeons, 504; of Canaries and other small birds and Pet Stock generally, 200; making the grand total of 2,001 Specimens exhibited from all parts of Canada and the United-States. The financial results were also most satisfactory showing an actual balance (after providing for all contingencies) in favor of the Association of \$144.18. Encouraged by these results of the Inaugural Exhibition, and that during the first year of the Association's existence, the management has decided to spare no efforts to make its Second Annual Exhibition even a greater success than the first one. With this object in view, the management would earnestly call upon the public of Montreal, and more especially those directly interested in Poultry, Dogs, Pigeons, Birds, &c., to support it by subscribing early and liberally to the Association's membership roll, which has been placed at the very low figure of \$1.00 per annum, which gives a number of privileges to intending exhibitors. All information promptly furnished upon application to

J. R. McLAREN, Jr., Secretary,  
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