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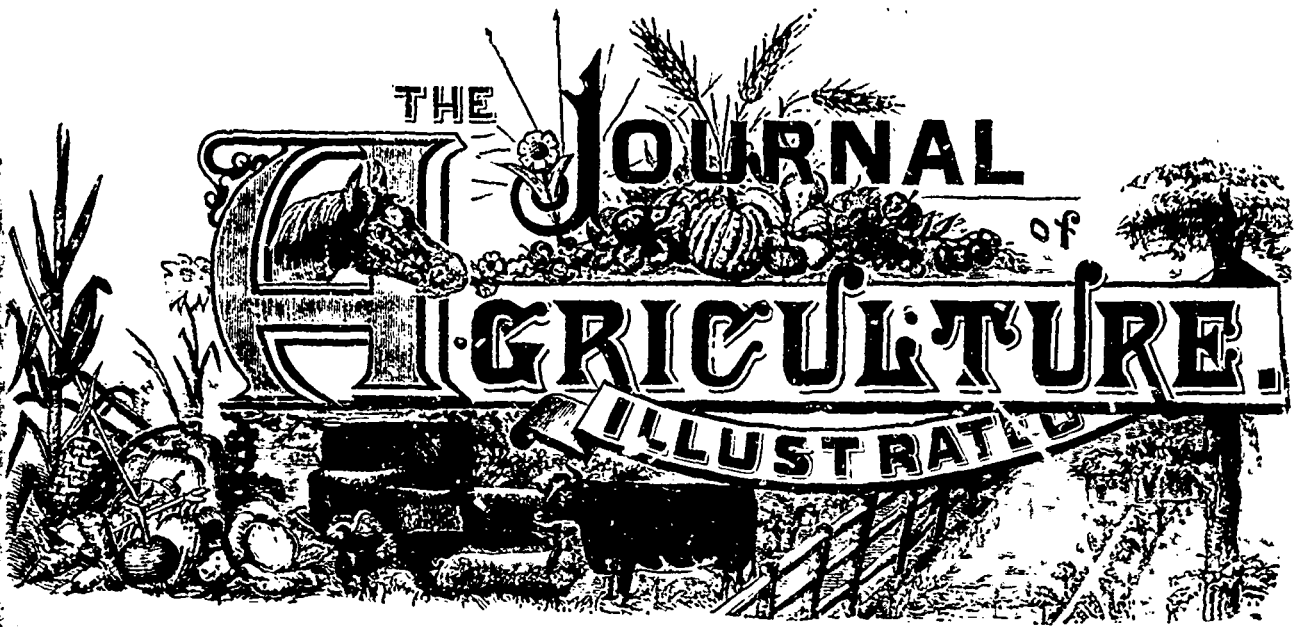
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NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies.—**EDITORIAL MATTER.** All editorial matter should be addressed to A. R. Jenner Fust, Box 109, Lachine, Que.—or to Ed. A. Barnard, Director of the *Journals of Agriculture, &c.*, Quebec.

OFFICIAL PART.

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In accordance with your request I send you a statement of our crops this year. We have harvested in good order :

2,500 bushels of swedes;	
150 " " turnips;	
400 " " mangels;	
1,200 " " potatoes;	
400 " " carrots;	
60 " " wheat;	
500 " " barley;	
450 " " buckwheat;	
400 " " oats.	

Acres under the plough.....	46½
" in hay.....	23½
" in pasture.....	25½
Horses.....	6
Milch-cows.....	15
Heifers.....	2
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The Journal is very late in appearing this month: the influenza deprived the publisher of many of his workmen, and I sincerely regret to say, proved fatal to Mr. Tourangeau, the foreman, one of the most energetic and intelligent of men.

ARTHUR R. JENNER FUST.

The Indian corn crop was only a trifle not worth mentioning. We are perfectly satisfied with our crops. We have laid down 23½ acres in grass, the whole of which is looking splendid. The mangels did well this year, but I do not think our land suits them. I expected you all through the summer in vain; but I trust it will not be so next season. Meanwhile, I remain

Yours very faithfully,
SÉRAPHIN GUÉVREMONT.

CORRESPONDENCE.

Sorel—January 7th, 1890.

Dear Sir,—I was happy to receive your letter, and to see that you still feel an interest in my prosperity. Thank you very much for your good wishes. In reply, I trust that your health may be always good, and that you may long be spared to give me good advice, which advice I promise you to avail myself of as far as lies in my power.

To ARTHUR R. JENNER FUST.
(From the French.)

Such a letter as the above gave me, I need hardly say, very great pleasure. The brothers Guévremont seem on the road to do more than make a living off their farm, and as I taught them all I could during my stay at Sorel, I am not a little gratified at their success. The farm they cultivate was, two years ago, in about as rough a condition as one often sees;

but as very little grain had been grown on it, and a good deal of stock had been taken in to graze from the City (OF SOREL!), there was a considerable amount of plant-food in the land when the brothers bought it.

As for the mangel crop not being suited to the land, M. Séraphin must recollect that I always told him that the root-crops for the Sorel soil were *swedes* and *Belgian carrots*. I consider it to be as easy to grow 30 tons of swedes or 25 tons of carrots on that land, as 15 tons of mangels. As I have said before, I never saw such carrots in England as those I grew on the Fosbrooke farm in 1884, and for milch-cows, they are the crop.

Besides the above named crops, there are many head of cattle taken in to graze—generally, 30 to 40 cows, and a dozen, or so, horses; and a very profitable business is done in milk retailed in Sorel. Altogether, I do not think my young friends will regret having followed my advice in buying the farm.

ARTHUR R. JENNER FUST.

DE OMNIBUS REBUS.

Box 109, Upper Lachine—Dec. 30th, 1889.

What we want to know.—Now that we have an experiment-station at work in the province of Quebec, I am encouraged to hope for an answer to several questions that seem to me to be of pressing importance. Among other things I want to know is: Why is the average crop of wheat in the province about ten bushels to the acre, when I myself measured up a lot of fall-wheat on the Manor-farm at St. Hilaire which yielded thirty-six bushels to the acre? The Abbé Chartier, of the Seminary of St. Hyacinthe, attributes the bad yield of such wheat-crops to the neglect of drainage; but, that can be only a partial reason, as there is plenty of good dry land to be found on most farms.

Again; why should the singling of root crops cost one man \$2.50 an acre, when another cannot get it done for less than \$13.00?

What is the best rotation of crops for both light and heavy land in our climate?

Which is really the more profitable, a crop of fodder-corn or a crop of roots; their respective effect on the other limbs of the rotation being considered?

As to the quality of milk sold in our towns: if cows fed on hay, swedes or carrots, cake, and corn, give milk containing 13% of solids, what would be the contents of milk from the same cows fed on brewers' grains, straw, and mangels? In other words, are not milkmen often fined for adulterating, or lowering their milk with water, when the food the cows receive makes the milk poor enough without the pump being resorted to?

Do 6 lbs. of ammonia, sown broadcast on an acre of land in any crop, make any perceptible difference in the yield of that crop? According to Lawes, it takes that quantity to produce one bushel of wheat!

We constantly hear of such dressings as 40 loads of dung to the acre being applied for potatoes, corn, &c. Would it not pay better to give half the quantity to the hoed-crop, and reserve the rest for top-dressing the grass? Should not hoed-crops follow the last limb of the rotation rather than be sown on grass? Are not oats the natural successors of grass, and do not hoed-crops cost more to clean after grass than after stubble, cleaned in autumn?

Does not cotton-seed meal sometimes cause abortion in cows? Would not a mixture of linseed with that meal improve it for all purposes?

How do pease drilled 24 inches apart and 3 inches deep, harrowed after they are up, and horse-hoed, compare with pease sown broadcast and, after being harrowed in, left untouched till harvest?

Horse-beans drilled-in 24 inches apart and three inches deep, harrowed and horsehoed, answer well on the Island of Montreal, and are, indisputably, an excellent food for horses and cattle in winter. Are they not worthy of an experiment on heavy land, in good condition, in all the more forward parts of the province?

Hurdling sheep on summer-crops of vetches, rape, &c., has been proved to be a profitable system at Sorel. Could it not be tried on the Seminary farm?

Which is more profitable, as food for milch-cows, the condition of the animals to be taken into consideration, 2 lbs. crushed linseed, 6 lbs. pease, 2 bushels straw chaff, and 45 lbs. of roots; or 6 lbs. hay, 4 lbs. bran, 4 lbs. cotton-seed meal, and 35 lbs. of silage as usually made?

What is the practical manurial value of one ton of poultry dung, compared with one ton of carefully made horse-pig- and cow-dung, mixed, in a fairly decomposed condition?

Should wheat and other grains be harrowed after they are up?

Is or is not the inferior yield of our grain-crops attributable in great measure to the very slovenly way in which the harrowing is conducted?

Is it wise to manure abundantly a few acres round the farm-buildings, and to let the rest of the land lie out "en paille," for several years, until it is supposed to be fit to produce a scanty crop or two of grain, after which it is to be allowed to revert to its original condition? Would not, say, \$5.00 an acre, expended in artificial manure, produce sheep-crops, which, being fed off on such fields, might be expected to produce after-crops such as would astonish the whole neighbourhood?

Would it not pay to establish, at the station, a good-sized flock of Hampshire-down ewes, from which ram-lambs might be dispersed over the province, thereby improving, both in quality and in the valuable property of early maturity, our, at present, very inferior and very slow-growing breeds of sheep?

Do, or do not, *Black-Tartar* oats yield from 6 to 9 bushels an acre more than any other kind, all other things being equal?

If 3 bushels of oats are a sufficient seeding for an acre in the first week of May, does not the habit of that plant indicate an extra half-bushel as requisite in the first week of June?

If wheat has two sets of roots, the germinal and the coronal, does not that peculiarity indicate the propriety of the deep sowing of that grain, in order that both sets may exercise their power of supporting the stem of the plant, and preventing the crop from lodging when at or near maturity? And, in the case of autumn-sown wheat, would not the roots of the deep-sown be more likely to escape being thrown out by the frost, than if both the coronal and germinal roots were close to the surface, as in the case of ordinary broadcast-work?

The Queen's ox.—This magnificent beast, a portrait of which will be seen on page 24 of this number of the Journal, weighed, alive, 2402 pounds, and, at 70% of its live-weight, would probably yield 1680 pounds dead. It was 3 years and 8 months old when it won the Elkington Challenge shield at Birmingham, and a loyal butcher paid Her Majesty £157.10 = \$785.00 for it: as nearly as possible 46 cents a pound!!! The Red polled ox, bred and fed by Mr. Coleman, who also took 1st for steers, and 2nd for heifers of the same breed, is a fair specimen of what care and skill can do in transforming stock. When I first recollect the Suffolks, as the red-polled

were then called, they were an ungainly lot, with papery hides, and their only good property was that the cows gave a large quantity of milk, but its quality was very poor. What does the Country-mouse give his guest when the Town-mouse visits him at his villa?

Cheese, such as men in Suffolk make,
But wished it Stilton for his sake.

Though I dare say, the practice of several skimmings and the bad subsequent manipulation had a good deal to do with the admitted inferiority of the cheese. Suffolk, of course, was a butter county. Can any body tell me if cheese is ever used now-a-days to grind up paints with? I believe that was the principal use made of Suffolk cheese outside the county; therein, as willers say, it served for pegs to fasten doors with—but that is libellous!

On comparing the two beasts, as a butcher would, we see at once that the shorthorn carries more flesh on the higher priced portions of his frame than the other: his "rounds of beef," and rumps are very superior indeed: while the red-poll is fuller in the brisket—observe, particularly, the *neck-vein*.—In the leg-of-mutton piece—excellent for stewing—the shorthorn is perfect, but this rival is, as is usually the case with all late-improved stock, very bad behind the shoulder. A glance at the head and eye of the Queen's ox shows that he is so calm and sober in disposition, that if he is properly treated he will give a good account of himself at the block. Both beasts are about the same age. The Queen seems to have been very successful this year, as indeed she ought to be, considering the most promising beasts are bought up for fattening at the Royal farms; but I would rather win, like Mr. Colman, with a beast I had bred as well as fed.

Hampshire-down lambs, at the Smithfield Club show, seem to have done their breeders credit; not one pen (3) out of the 14 shown weighed less than 560 lbs. = 184 lbs. each, and the heaviest went over 5 cwt. 2 qrs. 1 lb. = 209 lbs. a head. The Cotswold lambs are good, but the heaviest pen weighs 51 lbs. less than the Hampshire-down lambs. I have not yet received a full report of this important exhibition, so I must defer the rest of this résumé till later on.

Insecticides.—On the authority of Dr. Hoskins, I dare recommend the following insecticide to my readers: take out the head of a barrel of plaster and pour in, by degrees, a gallon of spirits of turpentine. When the plaster is thoroughly damped throughout, which it will be in a few days, sow it over the plants. If this answers, I think it would be preferable to the mixture of soap and petroleum, as being less likely to damage the young and tender leaves of the cucumber, squash, &c.; but I doubt very much if the *hallicia* (turnip fly) would care very much for turpentine.

The entomologist of the Ottawa experimental station, recommends the use of *pyrethrum* for the destruction of the caterpillar of the *ponuu napi*, or cabbage butterfly; I have tried it, and without the slightest success; the green fly that infests the pelargonium seems rather to like it!

The "Strawsoniser," an engraving of which was given at page 75 of the last volume of the Journal, is becoming very popular in England, and if the great market-gardeners round Montreal are wise, they will order one as an experiment. Is it not rather curious that Montreal sends cabbages to Quebec and Three-Rivers, and receives swedes from those districts?

A new Chevalier.—The French government has conferred the decoration of a *Chevalier du Mérite Agricole* on MR. JAMES CHEESMAN, of Southboro, Mass., secretary of the New-England Dairymen's Association, for distinguished services

as member of the U. S. Agricultural Commission at the Paris exhibition.

Jerseys.—"When you buy a Jersey, be sure that her milk is rich in butter-fat. If it is, then you will have an excellent butter cow. If not, then you have a profitless animal;" so says Dr Hoskins in the *Vermont Watchman*, but I think we all knew it before.

Clover Sickness and Clover Failure.

EDS. COUNTRY GENTLEMAN.—In your paper for 1887, page 208, may be found a most interesting article by Sir J. B. Lawes, giving an account of clover sickness as it occurs in England. In his letter Sir John refers to a paper by Mr. F. P. Root, and says it "establishes the fact that in the soils of the United States as well as in the soils of Europe clover sickness prevails wherever clover has been grown too long, or has been too frequently repeated."

I have read this paper of Mr. Root's (page 84, same volume), and find it treats of the failure of the wheat crop rather than of the clover, and although clover did not do well he does not describe symptoms resembling those of the European clover sickness.

Have we, or have we ever had, clover-sick soils such as occur in England? That clover sometime fails to grow we well know, but the causes of its failure were always apparent in the instances coming under my notice, such as poor land freezing in the spring, or drouths in the summer. In some sections of our country insect enemies are troublesome, but they are known and have been described and figured. But in England there is another and obscure cause of failure. There it seems that rich land suitable to clover that will grow large crops of grain, turnips and beans, refuses to grow clover, except at intervals of from four to twelve years, and that the addition of organic manure makes the matter worse. Is there a farm in the United States of which this can be said? I have never seen or heard of such land. More, this English disease is contagious, for Sir John tells of a case where it spread from an infested field a few feet over its borders into a healthy one.

That after growing clover every other year for 15 years, as Mr. Root tells us was once of the practice in Western New-York, the crop will diminish, is extremely probable, but this was never the custom in England. It came in rotation once in four years at the most, and always with manured crops between. Now, the rotation must be extended for a much longer time.

I hope your correspondents will tell us the results of their experience, but the first thing they should do is to read Sir John's paper. They will find plenty to think about, and will join me in thanking him for it. Among other things they will find that clover failing to grow and "clover sickness" may be two very different things.

GEORGE CLENDON.

Louisa County, Va.

The writer of the above seems to think that the failure of red-clover in England is attributable to some specific disease; whereas, I believe it to be owing either to the mechanical state of the soil, or to the supply of food coveted by this very peculiar plant not being sufficiently abundant in a condition suited to its palate.

At the Salem meeting of farmers, the fact was brought out that "it is getting to be difficult to get a good catch of clover." I do not think Mr. Clendon realises the fact that

it is the red-clover plant that is so specially impatient of repetition. White clover, Al-ike clover, and trefoil, come readily enough to the scythe, it is only the *trifolium pratense* that is so dainty.

I see that Mr. Barnard, in the French edition of the Journal for January, advises farmers to sow clover in the husk. In England, 40 years ago, clover and sainfoin were always sown without *milling* by men who grew their own seed. that they sold to the merchants was milled or husked of course.

Red clover is a mystery altogether: if our friend M. Choquette can find out a clue to the labyrinth in which it is involved, he will have deserved well of his country.

Barley.—Mr. Ryde, of the Lachine Brewery, tells me that very little of the barley grown in this neighbourhood this last harvest was fit for malting. All the barley the firm has bought, up to the present time, has come from the Ontario province, and cheap enough, too. (1) The season was too wet here, and, in consequence, the young seeds grew so fast that they nearly came up level with the heads of the barley, and made it very difficult to dry after it was cut.

In my country, the East of England, we fancy we grow the best malting barley to be found in the world, and in order to do so we take more pains over that crop than over any other grain we grow. Barley, with us, is generally sown after rape, coleseed, or turnips fed off by sheep. The land is ploughed close after the fold, to cover in the sheep-droppings, and the seed is invariably sown on the stale furrow without any more ploughing, the frost—slight as it sometimes is—making a finer tilth than any amount of our work can do. As early as possible in the spring, the harrows go to work, the horses stepping as briskly as possible, and when the land treads as equally under foot as the floor of a carpeted room, the seed is drilled in at the rate of from 2½ to 3½ bushels to the acre. Our 2 rowed Chevalier barley is a much larger grain than the 4-and-6-rowed kinds used here, so that an allowance of from 1 to 2 pecks must be made to equalize the quantity required in this province.

One reason why we sow barley thickly is that an unequal sample would be rejected by the maltster, and thin-sown barley on our manure-full land would tiller out so that many small, unripe grains would be produced. For the same reason, even on heavy land, we plough the ridges as flat as they can be safely made; for, the grain on the flanks of rounded ridges is never as plump as that on the crowns. It is a sad sight to see in some parts here narrow ridges left for the winter with the last furrow's unploughed. such farming can never produce malting barley.

If the seed-time is early and the spring propitious, we do not sow the grass-seeds at the same time as the barley is sown. For instance; if we sow barley about the middle of February, the grass-seeds would not be put in until April, unless the growth of the barley was very rank indeed. We do not like to see the seeds too forward. Generally speaking, a month or six weeks after sowing the grain, the grass seed-barrow is run over the land—preferably, along and across—and the light, winged-harrow, followed by the roller, covers all in tight. The barley is improved by the scarification, and there is no danger of the clover, &c., getting forward enough to injure it. We do not choose a frosty morning for this job.

The difference of price between certain qualities of barley in the English market is far greater than any thing of the sort here. For instance, to-day I see by the Agricultural Gazette:

Grinding barley	is worth from 20 to 24 shillings a quarter;
Distilling " " "	" 25 " 28 " "
Malting " " "	" 30 " 50 " "

(1) Forty-eight cents a bushel, delivered at the brewery door!

That is from 60 cents to \$1.30 a bushel! Weight, in England, has very little to do with the value of barley; the grinding qualities weighing frequently almost, if not quite, as much per bushel as the best malting barleys. No one but a maltster can tell wherein the difference lies, but a skilled operator knows at a glance all about it. Fifty years ago, the *heavy lands* on the chalk grew only grinding or, at best, distiller's barley, but, since the discovery of the Chevalier barley, that grain is sown on those soils after a summer fallow instead of wheat, and as from 56 to 64 bushels an acre is not an un common crop, the change is a highly profitable one.

The Dairymen's Convention—The annual meeting of this society took place at Arthabaskaville on December 12th. A report will be found elsewhere.

Mr. Barnard took occasion to urge "English fellow citizens" to join the association, and I think it is a great pity they keep aloof from it, but *en revanche*, Mr. Evans told me last week that there were no French-Canadian members of the Montreal Horticultural Society! A thousand pities indeed that this mutual indifference should exist—but I am trenching on politics.

ARTHUR R. JENNER FUST.

DAIRYMEN'S CONVENTION.

TWO DAYS' MEETING AT ARTHABASKAVILLE—A MOST SUCCESSFUL GATHERING.

(Special to the Star.)

ARTHABASKAVILLE, Que., December 12. — The annual convention of the Dairy Industry of the Province was held yesterday and to-day, a large number being in attendance. At the first session, Hon. Louis Beaubien addressed the meeting on the "Haras National" or Provincial stud, and at the second session the report of the official inspector, Mr. McDonald, was read. A lecture of Reverend Father Chartier, on ensilage, was followed by a lively discussion between Hon. Mr. Beaubien, Mr. Barnard and the lecturer. Reports of the delegates and the Federal Dairy Convention of last April at Ottawa were presented by Mr. J. C. Chappais. A resolution of the Convention asking the Federal Government to appoint a dairy commissioner and to give a liberal subvention to the Federal association was passed.

At the third session the opening address of the President, Hon. Mr. de la Bruère, was made, followed by an address by Hon. Colonel Rhodes, Commissioner of Agriculture; an address by Hon. Dr. Ross, ex-Premier of Quebec, on general agriculture; report of the Rev. Abbé Choquette, on the experimental station of St. Hyacinthe; lecture on the Federal experimental farm by Mr. Chicoine, of Sherbrooke; lecture by Dr. Couture on the herd book of the Canadian cow and the distinctive characters of Canadian cows.

SECOND DAY.

At the second day's morning session the order was as follows. Lecture on cheese making by Mr. Vigneau; lecture on butter making by Mr. Leclair, and lectures on churning by Mr. Allard. At this session the elections took place. The Hon. Mr. De La Bruère, who was active President for the last seven years, was elected Honorary President; Mr. Bernatchez, M. P. P. of Montmagny, active president, and Mr. Taché was re-elected secretary. Eighteen directors were elected.

At the afternoon meeting a message was received from Mr. W. W. Lynch, expressing his regret at not being able to be

present. A resolution of regret was passed. Mr. Foster, president of the agricultural society of the district of Bedford, addressed the meeting, and paid a compliment to his French fellow citizens for the progress they have made in dairying. He concluded by asking the aid of the Government. Hon. Mr. Laurier also delivered an address. Mr. McCallum, of Richmond, followed in the same strain. Colonel Rhodes, Commissioner of Agriculture, said that he was in sympathy with the meeting on this point. Mr. Bernard urged English fellow citizens to join them. Mr. Bourque, of Assout, lectured on the effect of the shade on the soil's fertility, and Mr. Dalaire on farmers' clubs.

CONCLUDING SESSION.

At the concluding session, the report of Mr. M. Archambault, of St. Hyacinthe, on a model dairy factory was presented. The Convention ratified the decision of the board of directors choosing Sorel as the next place of meeting. The reports of M. J. Painchaud and S. Cote, factories inspector, were presented. Mr. D. M. McPherson, President of the Federal Dairy Association, being present, answered questions put to him and invited those present to the Convention of the Federal Association at Ottawa in February. The President moved a vote of thanks to the citizens of Arthabaska for the cordial reception offered to the members of the Convention, seconded by Mr. J. C. Chapais, which was carried and the meeting closed after a short reply by Mr. J. Lavergne, M. P. for Drummond and Arthabaska.

The Convention is considered by all to have been a success, and the officers of the association say it was the most intelligent meeting they ever met.

Turnips.—The subjoined article on turnips is by one of our best known practical farmers in Gloucestershire. There are in it three points worthy of attention. 1st, the allusion to purely scientific authorities and their neglect to estimate the variation of qualities. As I have often mentioned in this periodical, our *plastic-clay* turnips in Kent hardly keep sheep going, whereas in the *green-sand* formation at Sittingbourne, in the same county, turnips and chaff will fatten them. On the Downs near Brighton, in the adjoining county of Sussex, the turnips grown on my farm-tutor's land—poor William Rigden!—were just able to keep a ewe-flock in decent order, while below the hill, on the flat near Shoreham, sheep ripened rapidly on them. Again, Mr. Pawlett, as I related in the former number of the Journal, found that during the month of October, November, and the early part of December, *white*-turnips pushed forward his Leicester lambs much quicker than swedes, out or uncut. Philip Pusey—both of these men are, or rather were, large flock masters—held the same opinion.

From the fact that the amount of turnips eaten by a sheep will diminish in the proportion of 12 lbs. for each pound of cake supplied, we deduce that a ton of turnips is worth, at present prices, in England, as they stand in the field, \$3.33; cake being worth £8 a ton.

Ewes will do well on straw and turnips if a moderate amount of nitrogenous food is added: say, half a pound of cake, a pint of pease, a couple of pounds of clover-hay in chaff, or plenty of pease-straw *with the leaf on*. Unless some one or other of these is given, the ewes will fill themselves with turnips and the lambing will be a disappointment. (1)

"Turnips are usually stated to be insufficient for fattening

(1) I see that already ewes in Hampshire, Eng., are aborting in consequence of having had to large a share of the enormous swede-crop of that county.

purposes. It has, in fact, been declared that sheep cannot be fattened on turnips alone. It must be allowed that the experiment is never strictly made in practice, because some sort of dry food is always given. We have, however, seen sheep do remarkably well upon turnips, and Mr. Clement Cudde, of Gloucester, whom we regard as an eminently practical authority on farming, told me that he had seen them fatted on turnips and little else. Turnips and straw are capable of keeping sheep in good condition, and so far as nutritive properties are concerned, they are sufficient. Too little regard is paid by *purely scientific authorities* to the great variation of quality in turnips according to the ground upon which they are grown. To them a turnip is a root containing 92 per cent. of water, and this is enough to condemn it. Turnips grown on land of good quality are superior to those grown on weak poor soils, as is evidenced by the quicker progress made by sheep placed on good land. *White turnips*, although actually inferior to *swedes* as a food, according to analysis, are superior to them up to January 1st or even later. They are less trying to the digestion, and their consumption forms an excellent introduction to the harder winter feeding which begins with the new year. Store sheep will thrive well upon turnips if they have access to oat straw or a little long hay or hay chaff. Ewes should be allowed a more liberal allowance of dry food, so as to induce them to eat more sparingly of the succulent turnip. Fattening sheep must have hay and cake or corn, and it will be found that the diminution in the amount of turnips eaten will be at the rate of 12 lb. of turnips for each 1 lb. of cake supplied."

Mangels.—If any one is preparing rams or wether lambs for show or for the butcher this spring, I warn him not to use mangels for them too exclusively. My farm-tutor lost several of his best exhibition rams, in 1852, from a species of crystals forming in the bladder on the urethra, and he and his shepherd attributed the formation of these calculi to the mangels. I was reminded of this by a paragraph I saw in the English Agricultural Gazette.

Dogs and sheep.—Dr. Hoskins, of the *Vermont Watchman*, complains of the impossibility of keeping sheep in his neighbourhood, owing to the ravages committed in the flocks by dogs. He is fully aware of the benefit to be desired from sheep-feeding, but the losses seem to be too great to admit of its being practised. The cure for this complaint is keeping a shepherd. Now a shepherd's wages are high, and with less than 100 breeding ewes I do not think the profit to be derived from sheep would pay them. Wherefore, as it seems there are plenty of deserted farms in Vermont to be bought for \$5.00 an acre, what is to hinder a man with capital from buying, say, five of them, throwing down all the fences, if there are any, and stocking the 500 acres with that number of breeding ewes? From what I have seen of the country, sheep would do well all the summer on the hill, and if a liberal use of artificial manure was made, and rapes, tares, &c., grown for fodder on the lower slopes, the whole face of the land would be quickly changed. A capital of \$5000.00 would be ample to start with on this system, but I have no hope of its being put into practice. I am sure there is no other way in which the worn-out lands of Vermont and Quebec can ever be brought into a state of fertility. The shepherd would have to be with his flock continually at first; but with a nice pea rifle or a good gun loaded with buck-shot, the dogs could be soon be got rid of and the sheep might pasture in peace. If I were 20 years younger, I should be sorely tempted to have a trial in Vermont.

Silage.—I was told that one-third of the silage in the No. 1

silos at Messrs. Dawes' farm was damaged; but Mr. James Dawes tells me the injury is trifling, and the cattle eat it freely, the cows never milking better. This I was glad to hear, as I know that the cutter had been out of order and the work had been stopped for a fortnight after the silo had been filled about 10 feet deep. It would indeed have been a pity if any of the finest crop of corn I ever saw, had been seriously damaged.

Mad sows.—What is to be done with a sow that after pigging goes crazy and seizing her young worries them one after another as a terrier does a rat? Mr. James Dawes asked me the above question the other day, and said he was going to administer laudanum. All I can recommend in such a case is to separate the sow and her young until the fit is passed. I have known a sow examine each one of her pigs as fast as she dropped them, and if any one of them was born dead, that one was eaten at once; but I never saw a sow eat her live offspring. In-and-in bred sows will do curious things, but the Messrs. Dawes change their boars often enough to prevent any danger arising from that source. This peculiar abnormal appetite indicates, I think, a want of nitrogen in the food. (1)

Leeks.—Of all the onion tribe there is nothing that gives a more emphatically delicate flavour to soups than the leeks. Their cultivation is simple, and as they will succeed well after a previous crop of radishes, lettuce, spinach, or any other early plants, they must be profitable to grow.

Cultivation: Choose a piece of light land, dig in well rotted dung *ad lib.*, in the autumn, and in spring, rake it fine and sow the seed thinly, as early as possible, in rows 9 inches apart. When the plants are large enough to handle, set them out in fresh ground in rows 9 inches by 3. After the radishes, &c., are done with, dig the land on which they grew deeply, and make trenches, as for celery, but only 15 inches apart, throwing out the *upper layer* of the soil on one side, and breaking up the bottom of the trench as deeply as possible with a strong fork. Place about 4 inches thick of rotten dung on the bottom of the trench, and returning the upper layer of soil just mentioned, blend the earth and dung well together. Into these trenches transplant the leeks, which by this time will have plenty of roots and plenty of earth adhering to them, and set them well down up to the heart, about 5 or 6 inches apart. No need to shelter them, if this plan is followed. The tops may be shortened in as much as you please.

When the leeks are about ten inches high, they should be earthened up, care being taken not to let the mould get into the heart, and the earthing should be continued until the leeks are ripe. Dig at the last moment before frost sets in. My crop of this year was dug and stored in an outhouse on the 14th November, and in spite of the numerous alternations of frost and thaw, the roots are perfectly sound to-day, January 2nd.

Smithfield Club Show.—I see by the Agricultural Gazette, arrived to-day, that the Queen's ox, mentioned in a former

(1) At Colonel Rhodes' the breeding pen is close to a coal stove, and when a sow is expected to pig, a light is kept on a night, and the sow is watched. As the pigs come, they are carefully removed to a warm place near the stove, where they are soon dried; as soon as the sow is free and manifests a desire to have its pigs they are at once and gently given to her. She is in fact assisted all through until every young pig has had its first milk. Bad mothers are thus soon found out and only the best kept. This should be done, more or less thoroughly, by all careful pig breeders. Ed. A. B.

article, won the £100 champion plate as the best animal in the cattle classes. He was bred, it seems, by a Scotch farmer, but I cannot find out the name of that deserving man. Feeding is easy enough, but breeding such a beast is the more meritorious.

Hampshire-Down lambs this year, though very good, are not so pre-eminently superior as usual. A wonderful pen of Lincolns weighing, the three, 566 lbs., or 188 lbs. a head, was shown, and generally the lambs were very much more precocious than formerly. Mr. Rae's pen of Lincoln ewes turned the scale at 350 lbs., each. Why the Southdown wethers were made champions, the judges best know. They were light in weight, and by no means equal to many of their rivals in the gain per diem.

Shorthorns.—These cattle have decidedly increased in value during the past year. In 1888, 1,594 head fetched, at auction, £44 013. 13s. 6d. In 1889, 1,348 brought to their owners £46 532. 6s. 8d = £27 15s. 8d. a head in the former case, and £34. 10s. 4d. in the latter. These prices refer to the mixed sales of bulls, cows, and calves of both sexes, the collective bull sales, a distinct branch of the trade being omitted in the return before me.

Windsor sales.—The sale of fat-stock from the Queen's farms at Windsor produced upwards of \$19,000! Hampshire-down wethers sold as high as \$40.00 each; the highest priced Southdown wethers only fetching \$25.00, while Hampshire-downs lambs went as high as \$31.00!

As to the best method of getting up a lot of sheep for show, there is the choice between house and open-air feeding. Sheep are not so happy under cover as in the open air, and we have heard the opinion expressed again and again that an open-air life is the best even for show sheep. Any judge can at once tell a shed-fed sheep from his wool. Plenty of room is also a point, and many prizes have been won by sheep which have been allowed to run forward in front of their fellows and pick the primest clover, rape, and cabbage. Upon the artificial foods it is not necessary to dilate, except in so far as to say that sheep of this description should be allowed a plentiful supply of the best that money can purchase. A constant variety in natural foods, and a liberal quantity of the *best linseed cake and old beans* fairly indicate the food, but who can describe the many minor points as to early and late feeding, frequency of meals, and methods of tempting the unwilling appetite, and coaxing the animals to grow? These belong to the art of shepherding, and are of vital consequence. A master might as well try to take prizes without sheep as without a shepherd, and it would not be possible to commit all the store of knowledge possessed by a competent shepherd to paper. Neither possible nor yet desirable; and if it could be done, the written directions would not ensure the same success in other hands. First-rate shepherds are not so uncommon as they are difficult to find, because they are not given to changing their situations often. A pleasant feature of sheep-farming is that mutual regard of master and shepherd, both men appreciating each other's value. Training is carried on with some little affectation of secrecy, and much undertoned and almost whispered consultation. The attention is constant and the daily care extraordinary.

The trimming of show sheep is a matter of importance. There are those who object to trimming, but it is impossible to show sheep in the natural unkempt and rough state. It is really cruel to ask a breeder to exhibit his sheep in a great show, before ladies and gentlemen, without dressing them. What would a horse-breeder say to a regulation insisting that his hunter or his thoroughbred should appear ungroomed and rough, with long tail and uncombed mane? A sheep-

breeder has similar feelings, and similar failings. Besides, the public like to see animals well turned out of hand, and even the pigs appear with their hair curled and oiled, and their skins blooming as if they had been immersed in a bath composed with toilet vinegar. Trimming may be overdone, or unfairly done, but to the legitimate use of the art there can be no objection. The methods vary with every breed. The Leicester appears, like the parson, all shaven and shorn. The Lincoln is smeared over with some mysterious unguent, which makes the hands feel very disagreeable if they are allowed to touch the fleece. The Cotswold comes out curly in coat, white, and redolent of soap-and-water. The Southdown appears as like a plum as a sheep can possibly be made, and bears evidence of the shears over his entire carcase. A very snug gentleman indeed is the Southdown when in his war-paint. Trimming is carried to the greatest perfection in the Down races.

Care of Straw.—A propos of my article in the January number of this Journal appears another in the English "Agricultural Gazette" which will be found below. In my day, we Eastern counties farmers found great difficulty in getting rid of the straw. Tenants were not allowed to sell it—not even if they covenanted to bring back feeding materials of more useful kinds to replace it, and the quantity grown was really enormous.

TAKE CARE OF THE STRAW.

While the season is still young for winter feeding it may be well to remind readers of the importance of economising straw. As much of it as possible should be passed through the chaff-cutter and employed as food. So far from being the drug on arable farms which at one time it was thought to be, straw has now become an important part of the grain crop. Good farmers are usually scarce of straw before harvest time, in spite of all their care; for, when a heavy stock of animals is maintained, straw is usually at a premium. We always grudge wheat-straw as litter. Its market price is too high, and its feeding properties, when properly treated, too excellent, for trampling under fat beasts. Many of our best practitioners in agriculture have reduced litter to a minimum, and in many cases have given it up altogether as wasteful. The subject pertains rather to the management of live stock than to a section devoted to crops, and yet it is appropriate that we should here say something upon the economic use of what is produced upon farms. Therefore, we say, study the best use of straw. The first point is to stack neatly and thatch it securely. As far as possible, if it is still to be used as bedding, let it be supplied under cover. "Strawing" sheep folds for the express purpose of disposing of straw must be considered as belonging to the past rather than the present. The old notion, prevalent a few years ago, that yards were better unspouted and uncovered, simply because such yards swallowed up straw, must also be considered as belonging to a bygone time. So also the idea of

BUYING CATTLE TO CRUSH DOWN THE STRAW

has now, we should hope, given way to wiser counsels. And yet it is strange how hereditary ideas survive and are propagated. There may be readers of the *Gazette* who still look upon cattle as a means of crushing down an excess of straw, or who even advocate spreading this valuable product of the farm before their sheep on turnip folds. But how, in the name of science or of practice, can such courses be defended at this date?

Value of Mutton in England.—Good mutton has become very scarce and dear; Southdown 70 lb. wether being worth

20 cents a pound dead weight! That is, as I have explained before, the buyer guesses a certain lot of live sheep to average 70 lbs. the four quarters, and has the skin, head, and offal for nothing. Canadian sheep, I regret to state, only fetch 12 cents a pound. I suppose we shall grow wiser in time, but the style of mutton we now send to England evidently does not suit that market. (1)

Cheap Farms in Vermont.—I find the following in Dr. Hoskins' paper, *The Vermont Watchman* of January 1st: "Mansur Roberts' productive farm of 225 acres was sold at auction to Heman Brown for \$600.00." This is equal to \$2.66 an acre; and yet the land is said to be *productive*! Thirteen cents an acre, at 5% on the capital: rather low rent, is it not for land that the good Doctor says is by no means exhausted.

Oat-contest. A puzzle for chemists.—Last spring the American Agriculturist offered a prize of \$500.00 for the largest yield of oats on a measured acre of land in North America, about which I had something to say. The prize was won by R. W. Strickland, Orleans County, N.-Y., and the yield of the crop was, I understand, given in the December number of the A. A., which issue I never received, so I cannot say what Mr. Strickland grew; it must have been a pretty good crop, however, as the second in the contest was 103 bushels per acre!

"The first prize-winner," says the A. A., "largely owes his great yield to the fact that the soil was abundantly stored with plant food, applied the previous year, or earlier, so that it may be said to have become thoroughly digested, and was in a condition to be assimilated by the plant to the best effect, going more to berry than to straw."

Now this has brought up a question in my mind as to what is the reason that all soils, as far as I know, have a certain limit, beyond which the growth of straw may be pushed, but the production of grain cannot be increased. For instance: I know of 88 bushels of wheat having been grown to the acre on a certain farm in the fens-lands in Lincolnshire, England. Sir John Lawes, after giving fifteen tons of the richest cake-fed dung to the acre on his good soil in Hertfordshire, year after year for 40 years, cannot get, in the most favorable seasons, anything over 60 bushels. Analysis of the soil cannot, as yet, solve the question; and I do not see any answer to it, except that as no chemist can make up a recipe which, though containing the same theoretical ingredients contained in the mineral springs of Harrogate or Spa, shall have the same effect as those waters compounded in Nature's own laboratory; so, in the case of the soils of our farms, the condition, in which are found the necessary matters that feed our cultivated plants, must, in certain spots, be more adapted to their powers of assimilation than in others equally well treated.

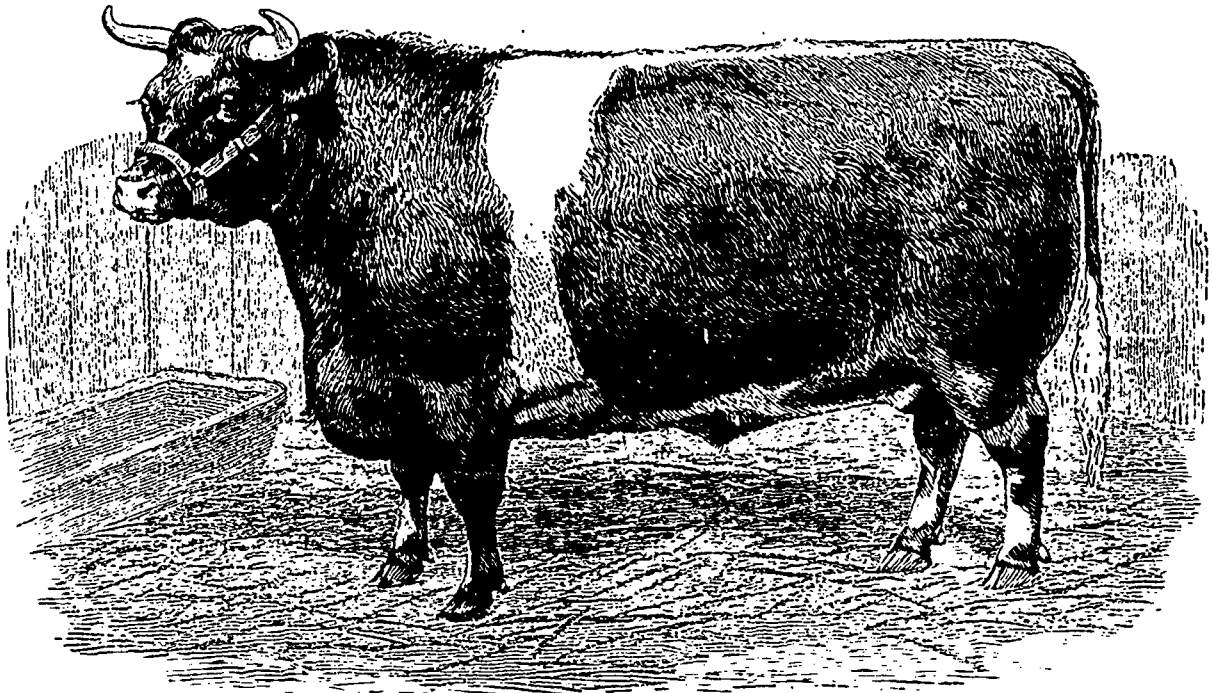
Highland cattle or Kyloes—A suggestion is made in the January number of the *American Agriculturist*, that as sleigh robes are in great demand, and the American bison is practically extinct, Kyloes should be bred extensively to supply their place. Sure enough, "the thick coat of hair with which Nature has furnished them as a protection against the Highland beasts, gives their hides, if slaughtered at the proper season, a value scarcely, if at all, inferior to those of the bison." But though the hides are good, the meat good—equal to the best of any breed, if not superior—and

(1) How much is Hampshire-down mutton sold for as compared with Southdown? Ed. A. B.
Depends upon the weight: a 9 stone Southdown would fetch about 1 cent a pound more than an 11 stone Hampshire-down. A. R. J. F.

the beast hardness itself, it must be borne in mind that they take a long time to arrive at anything like decent weight, they are impatient of confinement, and their horns are inconveniently large. As far as my experience goes, the Kyloes are not superior to the Gallaways, or to the Welsh cattle, in hardness, and meat in Europe is too high in price at present to admit of beasts being reared which do not arrive at maturity before 4 years old.

Mange in dogs.—My bull-and-fox-terrier suffers a good deal in summer from mange. I have found the subjoined recipe of great service to him.

First wash the dog in warm soap and water, and before he gets dry apply the following dressing thoroughly to the affected part. Take of er osote, $\frac{1}{2}$ oz.; solution of potash, 1 oz.;



SHORTHORN OX.—The Property of Her Majesty the Queen, Prince Consort's Shaw Farm, Windsor. Winner of the Elkington Challenge Cup at Birmingham Fat Stock Show, 1889, and of the Champion £100 plate as best beast in the Show of the Smithfield Club, 1889.

olive oil, 7 oz.; mix these well together. This dressing must be repeated at intervals of four or five days, and it is also an excellent plan to wash the dog's entire body once or twice in the ammoniacal gas water which can easily be obtained from any gas works, and it may be used just as it is without diluting, with perfect safety, care being taken of course that it does not get into the patient's eyes. The only objection to it is the odour, but this soon passes off.

Wheat-farming in Kansas.—I used often to wonder at the small average crops of wheat in the United States, but if much of it is carried on as Mr. Duff, of Pawnee County, in the state of Kansas, describes, in the *American Agriculturist* of last month, my wonder at the small yields as seen in the statistical reports gives way to my desire to know how the farmers of the above-named state make a living!

The Kansas farmer, it seems, ploughs his wheat-land once in five or six years. After the crop is severed, he puts in wheat again. The soil there is always loose and mellow—this is the first time I ever heard that looseness of soil was desi-

nable for wheat—that all he has to do is to go out and drill in his wheat. This is done, year after year, without breaking up the ground. The rule is to put in seed at the rate of 2 pecks to the acre. This seems to be abundant, and produces a heavy stand of wheat! The last crop was excellent, and is selling for fifty-six cents a bushel!!!

ARTHUR R. JENNER FUST.

The following is a description of the manures ready to be sent out from the Capelton Manure works, with price annexed. I am happy to see Mr. Nichols has taken my advice and brought out a high-class superphosphate containing from 17% to 20% of available phosphoric acid. With superphosphate of that quality and at the price mentioned, no one need send to England for that fertiliser. The month is too

far advanced for me to say much about these manures, but I will speak of them more at large in the March number. It will be observed that no mention is made in these statements of insoluble phosphoric acid, which omission is a pleasing variation from the usual custom.

ARTHUR R. JENNER FUST.

Capelton, P. Que., 25th January, 1890.

A. R. JENNER FUST, ESQ.,
Box 109, Upper Lachine, P. Q.

Dear Sir,—We thank you for yours of the 24th inst. Enclosed you will find pamphlet with prices marked on. We hope to do a large tonnage this year, as at the prices we are selling at, only a large turn over can make it a profitable business. As you are probably aware Canadian phosphate has risen from \$1.00 to \$2.00 a ton in price owing to the very firm European demand, we are keeping the prices however the same as before and actually manufacturing on even a smaller margin. Some of the grades there may appear to be

rather a big margin in the guaranteed analyses, this we have had to do from necessity, as we find it difficult to depend on the "Apatite," the miners not yet being very expert in separating all the bad from the good. We appreciate what you have already done for us having had quite a number of enquiries from your readers, and thank you for what you may do in the future. Truly yours,

G. H. NICHOLS & Co.
Per H. WIGGLESWORTH.

The "Reliance" Brand, a complete fertilizer for all crops.
F. O. B. works, cash, \$27.00.

GUARANTEED ANALYSIS :

Ammonia (N H ₃)	2	per cent.
Available Phosphoric Acid (P ₂ O ₅)	6.7	"
Potash (K ₂ O)	2.3	"

GUARANTEED ANALYSIS :

Ammonia, N H ₃	4—5	per cent.
Available Phosphoric Acid, P ₂ O ₅	9—11	"
Potash, K ₂ O	5—6	"

IN 200 lbs. SACKS.

Superphosphate, F. O. B. works, \$12.50.

GUARANTEED ANALYSIS :

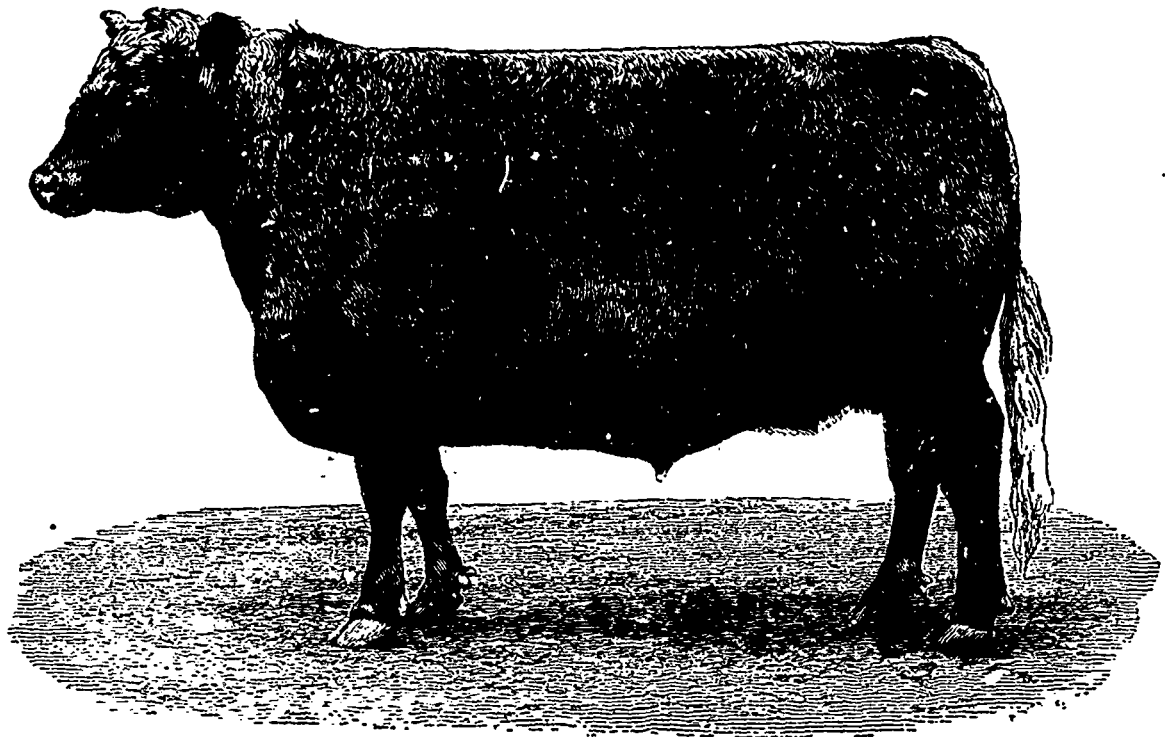
Available Phosphoric Acid (P₂ O₅) 8—10 per cent.
No. 1. Superphosphate, \$17.00.

GUARANTEED ANALYSIS :

Available Phosphoric Acid (P₂ O₅) 13—15 per cent.
Special high grade Superphosphate, \$25.00.

GUARANTEED ANALYSIS :

Available Phosphoric Acid (P₂ O₅) 17.—20 per cent.



RED POLLED OX. Bred by and the Property of Mr. J. J. Colman, M. P., Carrow House, Norwich.
Winner of the Champion prize at Norwich Fat Stock Show, 1889.

The "Victor" Brand, a complete fertilizer for all soils.
F. O. B. works, cash, \$30.00.

GUARANTEED ANALYSIS :

Ammonia, (N H ₃)	2—3	per cent.
Available Phosphoric Acid, (P ₂ O ₅)	7—9	"
Potash, (K ₂ O)	3—4	"

The "Royal Canadian" Brand, a high class fertilizer for market gardeners and special farmers.

Produces : Large, solid and smooth skinned *potatoes*. Vigorous big hearted and early matured *cabbages*. Sweet, tender and luscious *tomatoes*. Well filled and well developed *peas* and *beans*. F. O. B. works, cash, \$38.00.

Great Potato Crop.

The *American Agriculturist's* prize of \$500.00 for the best crop of potatoes, grown on a measured acre of land, was won by an Aroostook County, Maine, farmer named Coy. I mentioned the crop last month, but I did not then know that it was a competition crop. The sort of potato grown by Mr. Coy, the Dakota Red, is not known to me, but I should be glad to get hold of a sample.

The standing of the sets in a warm, light room, six weeks before planting, I highly approve of—I have followed the practice for more than 40 years, but only for the early lot. As Mr. Coy's sets were not planted till the 15th May, the crop would have been late unless started as above. spring in Aroostook so much backward than here? Messrs. Dawes

set 4 acres of potatoes here on the 22nd April '89. Two eyes were used to a set. Dusting the cut sets with plaster is all right if they are to be kept in a heap for some days, but useless, when, as in this case, they are to be set next day. Still, as rain or other things might delay the planting, I should always dust the sets, though I prefer air-slaked lime for the purpose—perfectly effete, of course.

The mode of manuring the crop seems to me to have been faulty in this. The potash—upwards of 50 lbs.—contained in the 900 lbs. of artificial, dusted round the plants after they were up, was I should think wasted. Potash requires sowing very early in the spring, or even in the previous autumn, if it is to do any good to the year's crop.

The yield of the 1st prize oat crop, mentioned on page—of this number, was 134 bushels, 21 lbs., American measure = 108 bushels of 40 lbs. A first-rate yield, though not an extraordinary one considering the conditions.

A. R. J. F.

Story of the Grand Prize Crop.

THE LOCATION AND SOIL.—Mr. Coy's farm is in Presque Isle, in the center of the renowned potato-growing county of Aroostook, in Northern Maine. He is not far from the New Brunswick line, in latitude $46\frac{1}{2}$ degrees. This region is the most fertile in the Valley of the St. John River, and is as newly settled as many portions of the West. Indeed, vast tracts in the Aroostook are still in primeval forest. The soil in this case is a strong clay loam with a few stones, and the original growth was sugar maple and black birch. The contest acre was quite smooth, with a slight exposure to the East, and a small knoll in the center of the plot. The soil is naturally dry. Its fertility may be inferred from the fact that it was seeded to grass in the fall of 1882, after having been cropped with potatoes, which yielded 400 bushels per acre with only a light dressing of manure. We infer that no additional manure was applied when seeded, and no plant-food was put on during the six years the land was in grass. Yet it gave an average of two tons of timothy hay per acre in 1885, 7 inclusive, though the 1888 crop was not so large. The market value of the land is placed at \$40 per acre.

PREPARATION.—After the removal of the hay crop, the land was plowed on August 1st, 1888, the strong sod being turned under to a depth of six inches. It was carefully cross-plowed on April 30th, 1889. Two horses and one man did each plowing in one day. After lying open to the weather for two weeks the ground was gone over with a spring tooth harrow. This implement does good work on such soils, and in this case the process must have been done with great thoroughness, as three horses were used, and a full half day devoted to it. The season opened early and dry, enabling the soil to be put in fine condition.

FERTILIZATION.—The intelligent farmer will observe that while this land had borne good hay crops for six years without manure, it was naturally adapted to the potato, as the prior large crops had proved. The heavy sod, plowed down in the fall, was partly rotted, decomposing as the season advanced and facilitating drainage after wet spells, and yet retaining moisture during the short dry times. The soil, therefore, afforded every possible prerequisite for the profitable use of plant-food, especially of chemical or commercial fertilizers. The soil in its nature was peculiarly adapted to the crop, its mechanical condition was excellent, and (with a good season) it needed only a liberal supply of plant food in the right form and in the proper proportions to insure a good crop. These conditions were complied with by the use of the Stockbridge potato manure, whereas, had the cruder and slower-acting

stable-manure been put on such soil no such result could have been secured. This fertilizer contained three and one-quarter to four and one-quarter per cent of nitrogen, seven to nine per cent of available phosphoric acid, and five to six per cent of potash. Eleven hundred pounds of this "manure" was scattered along the bottom of the trenches after they had been laid off for the seed, and was well mixed with the earth in and about the trenches by hand with the hoe before planting. The balance, nine hundred pounds, was applied June 12th, at the time of the first hoeing, by scattering a small handful around each plant and working it carefully into the soil with a handhoe. Care was taken not to let the fertilizer come in contact with the leaves or roots.

CUTTING THE SEED AND PLANTING.—The land was laid off in trenches two feet nine inches apart, the outside rows being within eighteen inches of the boundary line. The seed was dropped twelve inches apart as closely as possible, making about fourteen thousand hills on the acre. The seed was carefully covered by the hoe to a depth of two or three inches. The planting was done May 15th, and was completed in one day by three men. Four and one-half barrels of potatoes were used, worth one dollar per barrel. The seed was taken from the cellar about six weeks before planting and spread thin on the floor of a dry and reasonably warm room in the house. Only such tubers were finally selected as had strong, green sprouts at the time of planting, and no small tubers were used. The seed was out to two eyes on a piece. An idea of the size of the sets is furnished by the fact that one hundred weighed five and a half pounds. The sets were sprinkled with land plaster as fast as cut, to protect from rot and assist in giving the young plants a start, and were planted the day after cutting. Only about one set in a hundred failed to come up, and such vacancies were replanted. The Dakota Red variety, grown by Mr. Coy for the third year, were planted.

THE SEASON AND CULTURE.—The season was early and the spring dry as compared with former years. The weather was cold at time of planting, May 15th, and the soil, though dry, was rather cold. This continued for about ten days after planting, when it came on warm, with frequent showers. The crop was fairly up June 5th, and on the 12th was cultivated shallow, taking two men and a horse about four hours. June 12th and 13th the crop was hoed by hand (the remaining nine hundred pounds of fertilizer was put on at this time, as stated above), and the trenches filled in level full. It was again cultivated June 20th, this time deeply and thoroughly, and was hoed on the 24th, 25th, and 26th of June. Mr. Coy intended to hoe them again, but the growth was so great that it could not be done without injury to the vines. In June there were two rains a week, and it was so wet that there were few chances to cultivate potatoes. But the natural drainage of the plot avoided serious damage, while the retentive character of the soil prevented the leaching of the more quickly soluble portions of the fertilizer—a loss that might have been no small item on a leachy soil. July and the first half of August were dryer, averaging about one good shower a week—evidently perfect weather for potatoes during this, the critical period of their growing season (1).

Sheep,—How to make them pay.

COL F. D. CURTIS.

The time has come when the farmer must meet the sheep question on a close basis. It is true, that there has been a very small increase in the price of wool this year; but the per cents of gain will not put a lasting backbone into the sheep

(1) The digging, with forks, took 5 men $2\frac{1}{2}$ days to complete.

A. R. J. F.

industry. The action of the Treasury department in constraining the law more in favor of the wool-grower, in putting the higher rate of duty on the wool worked and partly manufactured, than was paid hitherto, will also aid. The wool-grower, of course, should and will welcome any and all gains which will enhance the demand for American wools and add anything to the price. In my judgment we must build up the sheep interest east of the Mississippi on the meat basis. Our flocks must be bred, fed and handled now for the mutton which can be gotten out of them. East of the Mississippi river, where sheep are bred for wool, never will be and there never can be much income obtained by the increase of the flock. The vigor of the flock is exhausted in the wool in the production of greater fleeces. The basis of American sheep husbandry, with the wool idea, must be the Merino breed; the thick and heavy fleeces of this breed are produced at the expense of early maturity, or a goodly frame—a meaty carcass. The blood must be stimulated to produce yolk, and a thick staple to diffuse it among. We sold our fine wool, of most excellent quality and weighty fleeces, for seventeen cents per pound, unwashed. The fleeces averaged nine pounds. This made a total of \$1.53 on an average, per sheep, of income. About half of them had lambs.

East of the Mississippi river the average cost for keeping a sheep one year is not less than \$2.50, and in all the Atlantic States it is \$3. The wool of my flock will pay half the keeping of my sheep, with three cents over. If every ewe had scored a lamb they would not be worth, Merinoes, more than \$2 each, any time during the summer or autumn. If kept into the winter they would cost all they would gain. In fact, lambs, yearlings, or two-year-olds will not pay for their keeping, with only the wool for an income, and this is all there is; unless the future increase of the ewe, the lambs she may year, are taken into the account. When this is done, then the annual income must be charged, with the back charges for rearing. Is not this a close business? Although my Merinoes were of the best, and thoroughbred, I could not afford to keep them. There were no sales at extra, or fancy prices, and I had to keep them on a mutton and wool basis. We are now eating the mutton of sheep which cost \$35 each. I am still a sheep man; but not on the wool basis. Wool must be made an incidental consideration. It must come in secondary. My ideal is mutton. I do not build entirely on mere theory. My castle is not entirely in the air.

We have sheep of the mutton breeds. A number of ewes, whose pedigrees were mixed, but with dark faces and good-sized bodies, produced lambs which went to the butchers when three months old and brought \$4 each. These ewes sheared five pounds of wool each, which brought twenty-two cents per pound, making \$1.10 each, or \$5.10 income. This is not a big showing, but it is the result of a common sheep business. My new sheep must do better. The lambs must be made for the shambles, to bring \$5 before they are four months old, and the sheep must shear more, at least a pound more. This will give me \$6.32 a year income, at the same price for the wool. Sheep enterprise must not stop here. We must breed for twins, and feed good enough to make them bring a first-class price. The Dorset Horned blood will help to increase the births, as it is natural for these sheep to bear twins and triplets. They are also a mutton breed. I am looking for a multiplying result by infusing this blood in our grade mutton sheep. The Hampshires are a typical mutton breed, with black faces and medium wool. My enthusiasm for sheep must not die. It shall not. Their flesh is the best meat-food God gives us, and we must have it, and have it as a nation. I want to see the brains of the American people, or at least the sheep-breeders, not to become dulled with disappointment and little increase, but to be quickened and shar-

pened to meet emergencies and to stand fast to the sheep industry of this great country. We must not become imbecile on the sheep question, but sift the business with larger meshes; and, with greater scope in breeding and feeding, meet the issues of the present, which demand sheep for meat, and sheep with a better prospect of double income. There is no doubt that with all of the different breeds of mutton sheep, the propensity to produce twins and rapid growth may be increased by keeping them in smaller flocks, and feeding more wheat bran and oil meal. We want to stimulate the bodily organs and not enervate them by puffing them out with fat. There is very little father and mother in fat. Any of our mutton breeds will do to start with and to build up the flock, with suitable food and care, and in addition use for sires the best mutton blood to be obtained. All of the black-faced breeds are adapted to make good mutton.

My ideal of a flock for profit would be, blocky, thick-fleeced, black-faced ewes of any breed I could get, or even high-graded, and then cross them with a Dorset Horned ram. I should expect with this mingling of blood to get lambs of fine quality, quick to mature, and lots of twins. An income of six pounds of wool and \$10 worth of lambs would put a new face on the sheep business, and it is worth trying for. I have written this on the plane of common sheep breeding, with no fancy ideas of blood, breeding, or even of winter lambs. The scheme is eminently possible and is being inaugurated on Kirby Homestead. A wholesale or general application might reduce the price of lambs a little but it would even then overtop the present system, which is driving so many out of sheep rearing."

Working for Pure Food in Ohio.

DAIRY AND FOOD COMMISSIONERS MEET DAIRYMEN IN CLEVELAND.

A meeting of the Dairy and Food Commissioners of different States constituting the National Association, was called at Cleveland for Nov. 27, to continue three days—the last to be a public session held in connection with the Northern Ohio Dairymen's Association. Iowa, Minnesota, Wisconsin, Illinois and Ohio were represented, but the delegates expected from New-York and States farther east did not attend.

The first two days were spent in discussing needed reforms and laws to meet them. A brief session on the morning of the third day was devoted to final reports of committees on a memorial to be presented to Congress, asking the passage of stringent laws against adulteration of all articles of food; for the suppression or proper labeling of acid and alcoholic vinegar; and a more restrictive oleo bill. The first two subjects were presented in the form of the present laws in reference thereto in effective operation at this time in Ohio. In the discussion on the adoption of these resolutions one gentleman related how a dealer in bogus butter in Washington complied with the law a few minutes after its passage, and at the same time kept his trade. He put the sign "Oleomargarine Butter Sold Here!" above a window on the seventh story, while his butter sales were made on the ground floor, the front of which was shaded by a broad awning! After a while he was spotted, and an officer sent to arrest him. He took the deputy to the seventh floor and had him (at great risk of his neck) lean out and read the sign. As it was in a conspicuous place and complied with the law, the officer did not arrest him. In Ohio, which had a law against coloring distilled vinegar in imitation of cider vinegar, it was found that distillers evaded the law, by making it of sour mash colored with burnt malt. Analysis showed no malt solids; so the inference was that it

was largely distilled alcohol vinegar colored with malt vinegar, and sold for the latter. An amendment of the law to meet the case was recommended and adopted. The Ohio commissioners had now under consideration the vinegar made at cider mills, by putting the pressed pomace into a leach and running water through it. If such vinegar passed less than two per cent. of vinegar solids, it was clearly an evasion of the law, and would be declared contraband. "Vinegar solids" were explained to consist of malic acid, pectose and a trace of sugar.

The commissioners then adjourned to meet the dairymen at the city hall. John Gould on being called up said that the meeting had been arranged in the belief that it would be a good idea for the dairymen to meet the commissioners, and discuss the needed changes in laws relating to dairy products. The dairy interest of the country was a vast one, exceeding in value that of the national banks, and should be as carefully guarded by legislation as that of any other interest. The question of poor food was important also, and every one should be in haste to bid godspeed to all efforts to bring about the time when the wholesale adulteration of much that we eat would be unconditionally ended. As yet there were but nine States which had commissioners to inspect food substances and punish adulteration.

Hiram Smith, the veteran Wisconsin dairyman, who profitably keeps 100 cows on 200 acres of land, next addressed the meeting. He did not see much prospect of cutting off the oleo competition by law. The two-cent tax certainly had not killed the business, and it looked as if dairymen must meet the situation with other than legislative warfare. Oleomargarine found considerable sale where the law could not reach, as it was sold to ignorant people who could not tell the difference. He would educate the people to like dairy butter by making a good article. A dairy school was to be started at the Wisconsin Experiment Station. When consumers generally were educated to appreciate the flavor of good dairy butter then they would not buy the spurious. The fact was, much homemade butter was a disgrace to the makers, and gave color to the claim of the Armour and Swift crowd that their base imitations of butter were the best. We might possibly meet the bogus butter elephant by cheapening production. When we can produce a pound of butter as cheaply as cattle feeders can produce two pounds of meat, then oleo oil would cease to be a successful rival. We could not make butter as cheaply as that until we radically changed our methods. The pasturing of a cow on three acres in summer, and then having her consume the product of as many more in winter would not meet the situation. If we investigated we should find that the rich nitrogenous foods that helped so materially in producing rich milk and large butter yields lost but little in manurial value. Cottonseed meal lost but 15 per cent., and bran but 10 per cent. Feed such foods abundantly and return the manure to the soil, thus increasing not only the milk yield but the capacity of the land to keep more cows.

WHAT IS A STANDARD CHEESE?

After dinner a committee on resolutions reported with a view to bringing out discussion. The first one discussed criticized the present ruling of a former dairy commissioner of that Ohio standard cheese should be made of at least one-sixth new milk.

Henry Talcott, assistant commissioner, took the floor and explained that the commissioners held meetings in the leading dairy centres, and consulted with manufacturers of cheese as to modes of making and amount of skimming. They found only three full cream cheese factories in Ohio. The rest either skimmed the night's milk the next morning, or allowed

the patrons to do it. The question arose as to how much full milk a cheese should contain not to be called a skim-cheese.

It was found that most manufacturers skimmed in the fall months at the rate of 9 lbs. of butter to 1000 lbs. of milk, and on this basis Gen. Hurst, who was not an expert, and without consultation with his assistants, sent out his noted circular fixing the quantity of whole milk at one sixth, and thus established the brand known as "Ohio standard." Some manufacturers adopted deep setting, and some the centrifugal method of treating the five-sixths of skimmed milk, and this made a cheese very much poorer than the "night skims" made by most factories, which soon brought the Ohio standard cheeses into disrepute. To his personal taste, the taking of one pound of butter from 100 lbs. of milk made better cheese than a full cream, but it was possible to spoil a full cream in making, and there was a difference in night skims. Mr. Crozier, a manufacturer of Lorain county, thought that if the law allowed the skimming of 1 lb. per 100 lbs. of milk in April, May, June and July, of 1 in 80 in August, and 1 in 60 in September, October and November, it would be more just than the present ruling, which was a damage to the business.

W. B. Straight said that he represented the manufacturers. He ran a chain of factories in Geauga and Ashland counties, and knew something about making cheese. His custom was to have the milk set over night in vats holding 400 gallons. Spring water was run around it to keep it cool, and it was skimmed in the morning and made into cheese with the new morning's milk. Milk so treated does not part with more than half the cream that could be got out by the centrifugal machine or deep setting. Had been in the business 23 years and tried many experiments, and was satisfied that the cheese-maker who practiced night skimming could make a cheese that would satisfy the consumer, and at the same time pay the farmer more than in any other way. The present way of making night skims was just the way that farmers formerly made what everywhere passed as full cream cheeses. Not only did milk buying manufacturers of cheese make them on this system, but cooperative factories followed the same system, and he knew of instances where cooperative factories had tried making full creams and then gone back to the partial-skimming system as the proper way. He did not think it possible to have a national law that would satisfy all sections, as the quality of milk varied in different States.

In an answer to an inquiry from the writer, Mr. Straight said he supposed most of the New-York State cheese branded "full cream" was such after the New-York fashion of making, but he visited many New-York factories twenty years ago, and at that time the methods of making were so crude that more cream rose upon the whey than Ohio men skimmed off before making. "Why, it was so thick you could almost walk upon it." Perhaps they had improved in cheese-making recently, but it was a fact that Ohio cheese men bought whey butter of New-York factories at 6½ cents a pound for cheese-cream. In Ohio they skimmed a part of the milk before making, and made 20-cent butter; in New-York they skimmed the whey to about the same or greater amount, and made it into butter worth 25 cents for four pounds. The quality of Ohio night-skims came so near New-York fall cream that there was only a difference of ½¢ per lb. in the largest cheese market in this country.

Mr. S. made two lots of cheese—one full cream and one skimmed at the rate of 1 lb. of butter to 90 lbs. of milk—and sent them to two large New-York dealers, branding the night-skimmed A, and the full cream B. They sold at the same price, but one of the buyers wrote that he thought the A brand a trifle the best.

Mr. Failensby of Lorain county thought Mr. Crozier's way

of skimming should be slightly amended. He would skim August milk 1 lb. in 80; September, 1 lb. in 60, and October and November, 1 lb. in 50.

Mr. Thorn of Wisconsin contested stoutly for a full-cream cheese. This alone could be the standard. A man who got a reputation for woolen goods could keep it up only by using wool alone in their manufacture. If a maker of steel mingled iron with it, then his reputation for steel would be gone. Nothing would make a full cream cheese but leaving all the cream in. He favored a national law compelling the branding of cheese just what it was. The brand should be put on the article; not on the box or package.

Hiram Smith said the market price of cheese and butter was fixed where the most was used—across the water. Canada cheese brought $1\frac{1}{2}$ to 2 cents per pound more than New-York or Ohio cheese for export, and he believed it to be because more care was used in making. Canada has a dairy school and six instructors, who travel to teach factory operatives how to make good cheese. Canada was crowding United States cheese out of the market. He thought it possible that much New-York cheese was wasted in making down to the quality of "partial skims." It was not necessary, however, as the "double cheese" was made by incorporating the cream of an equal quantity of milk with the full milk made up—or in other words, it consisted of one milk and two creams. The fact that New-York cheese held the markets of Northern Ohio showed that the Ohio standard was too low. What was wanted was to decide *how much was left in*, not what was taken out. Milk varied, and the only way was to have a law designating the amount of butter fats that a cheese should contain to bear the brand "full cream." He would insist upon their containing $3\frac{1}{2}$ per cent of butter fat (conductly again 100 lbs. of milk as good cheese should have at least $27\frac{1}{2}$ of butter fat. E.A.B.) The method of deciding by the months was erroneous inasmuch as the season of the year had nothing to do with the solidity of milk. The butter fats increased in proportion to the liquids as the pregnancy of the cow progressed. With a cow coming in mid-summer the milk would contain most solids in spring.

Mr. Straight explained that most factories opened in March and closed with November, and the cows were fresh in spring and dry in winter. Mr. Crozier said many Ohio cheeses were shipped to wholesale grocerymen without branding, the dealers putting on their own brand. It was possible that a good deal of cheese made in Ohio was sold at New-York as full cream.

After agreeing to meet some time in the winter, the association adjourned.

L. B. P.

THE DAIRY.

WINTER RATIONS.

Mr. Barnard's paper on the Rational feeding of milch-cows now in the printer's hands will throw some light on the question of winter rations. The principles underlying this subject are plain, but do not seem to have become familiar to farmers across the English Channel or to the English speaking farmers of America, so far. JULES CREVAT, a French author and farmer, who studied under German masters and is familiar with the work of English authorities such as Messrs. Lawes & Gilbert, the Voelckers, father and son, etc., has brought out in a book of 450 small pages, the principles which underlie the feeding of animals, for the divers objects in view: labor, meat, milk, wool, etc., reproduction, etc. This work has received the highest praise from

various scientific bodies such as *La Société des Agriculteurs de France*, &c., &c., and is considered as a standard work. E. A. B.

The letter from Mr. Mark Finch in the *Gazette* a fortnight ago reopens for discussion a subject of the greatest importance to dairy farmers, viz., the most economical method of feeding the animals consistent with quantity and quality of produce. Within the last few years the German standards in this department have become pretty familiar to us all, and nearly every reader of farming literature has tried for himself how far the ordinary rations he uses conform to these standards. Let us repeat the figures for the sake of reference, so that we may institute comparisons as we go on: a cow weighing 1,000 pounds weight should get daily 25 lb. of dry food containing $2\frac{1}{2}$ lb. of albuminoids, $\frac{4}{10}$ lb. of fat, and $2\frac{1}{2}$ lb. of carbo-hydrates in digestible forms; reckoning one part fat as equivalent to two and-a-third parts of carbo-hydrates this gives an albuminoid ratio of 1 to $5\frac{1}{2}$. According to the views now generally held, therefore, every owner of cows should set about compounding the various foods he has on the farm, or buys, in such proportions that each animal shall get daily (while in milk) the above quantities of ingredients. This of course can only be done by the help of analytical tables, and sometimes involves a very large amount of calculation. Mr. Finch gives several of such rations ready made, and which approximate very nearly to the standards, so that it is hardly necessary to multiply the number of these, especially as they might accord with no-one's particular circumstances. We may take it, however, that oat straw, roots, and cotton-cake form a very common combination of foods found on a farm, and it may not be superfluous to work out the quantities of these which ought to be given to an animal daily according to the regulations. Thus 20 lb. of oat straw, 56 lb. of swedes, and nearly 4 lb. of decorticated cotton-cake give approximately the quantity of each desired. The proportion of oil (taking the cake as containing 10 per cent.) comes out a little high, but if bean meal were substituted for a part of the cake the ratio would then be perfectly balanced. It is quite possible to make a ration with hay and roots alone which shall come approximately near these figures, and one is given by our correspondent consisting of 31 lb. of hay and 25 lb. of roots, thus yielding rather over the standard in each item.

After all has been said and done, however, we respectfully submit that these standards do not suit British cattle. There is little doubt that we give our milking animals too much oil in their food in the shape of various cakes—excepting in the case of cattle which are intended to fatten as well as to milk—for it is demonstrated that fat helps very little, if at all, in production of milk. But it has likewise been demonstrated that albuminoids are the great stimulants of rich quality, and it is with regard to them that we venture the opinion that one fifth of the food formed of these is not enough. We have repeatedly worked out the proportion in the rations in our own case when the animals were yielding an average of 15 per cent. of cream on the milk and found the ratio 1 to $3\frac{1}{2}$, while a change towards the 1 to 5 standard was followed by a great and immediate decline in the cream. Another point strikes us in connection with the origin of this ratio theory: the experiments on which they were originally based were carried out on animals which yield the poorest quality of milk—excepting only the cow with the iron tail—and results obtained with them we hold do not apply to the descendants of the *Bos longifrons*. Our German friends originated the idea: the cattle of Germany are more or less of Dutch or allied breeds: the milk of these is of inferior quality according to the table published in this column the other week; and putting two-and-two together we think we can make four. To be sure our American friends—ever on the outlook for impro-

vements—have adopted the theory into practice in a wholesale way, and with apparently good results, but so also have they adopted the escutcheon theory, which we find is oftener wrong than right on this side of the water. Let us repeat that while we believe 1 to 5 albuminoid ratio is admirably suited to Dutch cattle and others of the *Bos urus* type, we hold it necessary to give 1 to 3½ or 4 for breeds where rich milk is usual and expected. Mr. Finch commends the rations which he gives, as they keep the animals in good health, and yielding satisfactorily. Would he see if the analysis of the milk as regards fats and total solids bears out what we say, or the reverse? To look at the practice of the ordinary run of farmers it certainly seems as if they found it necessary to give a larger proportion of albuminoids, for the quality of bran, cake, bean meal, &c., which is generally used, must give a high ratio—bran itself being looked on as a stimulant in this direction. The Vernon experiments carried out in 1886 by the British Dairy Farmers' Association obtained results corroborating the German theory, and it was found that as little as 20½ lb. of dry food daily was sufficient to give maximum results. We presume the breed was Shorthorn, and if so it corroborates what we say above respecting different breeds where the fat percentage is low (averaging about 3½ per cent. in these experiments). But for other breeds, and especially where quality of milk is desirable, we maintain that while the total dry food may remain the same, the proportion of albuminoids must be increased to some extent.

There is, of course, the argument that animals ought to yield proper results on a given standard, and in comparing one animal with another we must adopt a common basis of this nature, while those which do not come up to the mark should be got rid of as inferior, but there are an endless number of circumstances to be taken into account in practice, such as the available supply of food on the farm, the desires and appetites of the individual cow, the breed, the kind of milk desired, the natural capabilities of each animal, &c., &c. Of course we can breed in the direction of the standard of feeding, and perhaps develop a strain of milkers which will give the maximum yield on the quantities laid down—but we question if some other drawback would not arise. At the recent Dairy Show there were some abnormal results in the way of quality obtained from Jerseys and Guernseys. If these animals were fed with food of the quantity and quality stated in the rules, then we hereby acknowledge that we are wholly in the wrong, and that our own experience is misleading.

In conclusion we may just point out that grass—the natural food of the cow when yielding her best milk, and the most of it—has an albuminoid ratio of about 1 to 3½ or 3¾. We grant, of course, that she requires more oil or carbohydrates in the cold weather, but nevertheless, this is a very good argument in favour of an increase in the amount of nitrogenous food.

P. M'C.

Raising Calves by Hand.

MESSRS. EDITORS—Having noticed several articles in the COUNTRY GENTLEMAN discussing the two methods of raising calves—allowing them access to their mother, or raising them by hand—I give our experience with the latter, which we consider far preferable. The many advantages in favor of weaning the calves should entitle it to universal practice, not only in large dairy establishments but also in small families where only one or two cows are kept. With judicious care in feeding, the calf keeps healthy, grows faster, because it can thus be taught earlier to eat other more nutritious foods,

and at milking time both the cow and her calf give the herdsman far less trouble. Instead of being stunted in its growth, the calf raised by hand may be pushed faster than one with its mother, though when intended for the dairy this should not be done.

Weaning the calf also renders the cow much easier to milk, for as her calf is never allowed to perform its office of relieving her udder of its pressure of milk, she soon forgets the calf and adopts the milker instead, pouring out her whole wealth most generously under his skillful manipulation. No reserve is kept back, the cream of the cream, for the absent darling who with calfsish playfulness has run off to a distant pasture with the yearlings. Neither is there any uneasiness on the part of their owner, lest the cows and calves should get together between milkings, for as calves that look to their mother for milk depend upon that alone, they consequently go hungry a great part of the day and spend their time waiting at bars and gates ready to slip through at the slightest opportunity. Their mothers, too, quite as anxious, will leave the most tempting pastures long before milking time, and stand lowing at the gate, answering back the plaintive cry of their offspring. As it is now, all that old-time excitement attending each occasion of home coming is done away with, and I do not remember hearing a cow low for six months. They come quietly from the pasture in single file, march into the barn, and each takes her place automatically and waits for the attendant to relieve her of the milk that was beginning to grow burdensome. They have been on good terms ever since her calthood, and now that she is filling his pail she feels that she is to her milker *in loco matris*.

The calves were housed first; they followed the herdsman as he came up, for he finds that tolling them along by holding out his finger to the youngest is easier work than driving. Each calf has made friends with him very early in life—in fact its first meal was taken from his finger which had been dipped in its mother's milk, the process being repeated until the young animal's head found its way into the shallow milkpan. During the first three or four weeks of its life the calf remains alone in a close box stall where it has a bed of soft, clean straw, and is fed by the herdsman three quarts of its mother's milk freshly drawn three times a day. This continues as long as it is necessary to milk her that often. When she is milked only twice in 24 hours then the calf is fed twice, receiving each time from one to two quarts more than it formerly received at a single feed. The quantity of milk given should be specially adapted to the requirements of each calf, an unusually large one more, and an undersized one less, the herdsman being the judge in such cases and reducing the quantity at once should it appear to disagree with the calf.

There are many benefits derived from housing the calf until it is three or four weeks old. Its bones are too soft for the rough awkward exercise in which it often indulges, and they are sometimes sprung out of line; in fact one of ours had the misfortune to break its leg, probably in some of its wild frolics. Then they are protected from the rain, the cold, or the hot sunshine. The time spent in looking up each calf at feed time is also saved, and a pleasant social relation is established between the calf and its attendant. This should be one of gentle but firm control on one side, and of quiet submission on the other. The calf should at the beginning have a leather collar buckled around its neck, and should be led about occasionally or tied so as to learn obedience to control.

When about four weeks old, let the little prisoner out of his stall some bright sunny day after its morning meal. The first glimpse of the outside world has a very amusing effect on the little fellow. First it runs here and there at the top of its speed, seemingly in play, but really prompted more

by fright and surprise. A sight of his own shadow will startle him, and I have seen an old stump awaken emotions of the liveliest curiosity. He is afraid of all things, and rushes from one side of the lot to the other until his unaccustomed muscles are quite exhausted, after which he quiets down and gradually learns that all nature is his friend. Another benefit derived from confining the calf for the first few weeks of its life is that it is thus prevented from eating grass and other foods of like character until its ruminating stomach has sufficiently developed to manage them. A little bunch of sweet hay placed within reach during the latter part of its stall life will tempt the young calf to exercise its chewing and ruminating faculty. I have seen one take a single straw and follow it to the end.

If we need more cream to fill butter engagements when the calf is one month old, sweet skim-milk may be warmed and fed for one-half its ration, which may now be increased to 20 lbs. a day. A few spoonfuls of flaxseed jelly should be added to the skim-milk, in the manner described by Prof. Stewart, (page 752), gradually increasing the quantity of jelly, until when two months old all skim-milk may be giving, mixing in a small quantity of corn meal, wheat bran, oat meal and linseed meal. Or, what is still better, make a combination of such of these foods as we have, and begin by putting in a few spoonfuls of the mixture, gradually increasing the quantity as the calf grows older and becomes more accustomed to it. The milk ration, however, is never increased above 20 lbs. a day, even after skim-milk is substituted entirely for whole milk, because other more nutritious foods are added. Flaxseed jelly seems better suited to young calves, and linseed meal to older ones. After the calf is two months old let it have all the green grass it wants, or fresh sweet hay if during the winter season, keeping up its milk ration at the same time, for until six months old the calf should be allowed to get fat as well as induced to grow rapidly.

Fed in this way, our calves, pure Holsteins, weighing at birth from 80 lbs. to 125 lbs., will easily weigh when six months old from 500 to 600 lbs., and this we think amply sufficient for cows intended for dairy purposes.

Logan County, Ky

HORTENSE DUDLEY.

A Practical Man's Standard.

The American owners of dairy cattle which have been mostly brought from the other hemisphere, have succeeded in producing some wonderful results by feeding for the specialty. For 30,000 pounds of milk to be drawn from the udder of one cow within twelve months is not less astonishing than for one day's milk-make of another cow to yield at the obura six pounds of veritable butter, or for another cow to give milk so rich that five pounds will contain one pound of butter. The scientific world, and especially the lovers of *boviculture*, will thank these men for what they have done. And although they may not yet have demonstrated the extreme possibility of the cow, they have gone so far in that direction that those who are working along in what they consider a practical way need never try to overtake them. The humane and practical man wants his cow to live as long as her inherited constitution with good treatment will permit. He will not feed her with succulent foods and tempting drinks with the view of making her secrete more milk than she can conveniently enrich with from 12 to 15 per cent. of milk solids. He wishes her character in this respect well sustained whether he expects to sell her or use her in his dairy. He thinks that a great many more cows have been killed or permanently injured by too much food than have been reported in the papers. It has been the

successful tests, not the failures, that we see in print. Nor does the practical man breed his cattle in-and-in until he has taught them to secrete milk with abnormal proportions.

Are not casein and milk-sugar valuable ingredients in normal whole milk? As Colonel Curtis says, "The cow should be tested for her adaptation to the cheese factory as well as the butter factory." Milk well balanced between casein and butter fats will make cheese of a quality superior to that made from milk poor in those elements which go to make butter. The tendency is to develop the butter fats at the expense of casein, and when this is done the quality of the milk as a food is lessened; for we must remember that casein as a food will grow a child or a calf healthier and faster than butter fat.

Neither should there be such a war upon the water that the chemist finds in the whole milk. One half the weight of our bodies is water, and 75 per cent. of the blood that courses through the veins of all animals is water. All animals as well as vegetation digest or assimilate their food in a solution of water. If we send a solid as food to our stomachs we must furnish from our own bodies or otherwise a fluid to assist in its digestion and appropriation. Why should we wish a cow to put less water in her milk than she or we either have in our blood? She can put the water there in better proportion than we can. And if she does not, we would have to dilute the milk before feeding it, or the cream before churning it. Besides this, she will mix along with the water the usual amount of casein (the cheese quality) and sugar of milk, for these ingredients are nearly the same in all milk whether rich or poor in butter fat. But the advocates for a milk rich only in butter say that they do not wish their cows to waste their strength in the production of things they do not want. From their standpoint they argue well; yet we plain practical people are afraid that if we attempt to convert our cows into butter machines exclusively, the quality of the milk for other purposes quite as important will be deteriorated, and the constitutions of the cows themselves on which we depend for future herds will be materially injured.

Yet we thank these specialists for travelling the road as far as they have gone, for demonstrating to us the nutritive value of certain foods used in this direction, the necessity of close personal supervision, and the good of devoting only those cows to the dairy whose suitability can be proved in actual profits. They have also taught us the distinguishing marks of a good milch cow, and showed us how to develop her latent qualities, asserting that the majority of cows of all breeds yield less than half the quantity of butter they might be made to produce. Still, lest there be many disheartening failures, the practical farmer or dairyman must not set his standard at a point which he may not easily and safely attain, which is, that his cow will give daily from 40 to 50 pounds of milk, and a well-balanced milk too, that will be good, healthy, nutritious food for the table, and which will yield, when all of it is churned, 21 pounds of butter per day, or four whole-milk cheese per day.

HORTENSE DUDLEY.

A RECENT report from Secretary Rusk's department declares that the purpose for which agricultural colleges were established in the several states, and to which the government contributed by liberal grants of land and money, has not been realised. The colleges do not educate men for the farms, but for professions, and the tendency of their teachings has been to draw young men from the farms, instead of fitting them for work on them. If 'Uncle Jerry' is correct in this, we hope our good Senator Morrill, who must feel in some sense responsible, will see whether something can not be done about it.

NON-OFFICIAL PART.

Conservatism vs. The Rago for Novelties.

The Seed Annual for 1890, issued by D. M. Ferry & Co. of Detroit, Michigan, has reached our table. Its cover this year is especially artistic and attractive, and its contents a usual, interesting and instructive. Ferry's seeds are thoroughly reliable and always come true. The directions given in the Annual for the cultivation of both flowers and vegetables are so full and explicit that no one can fail of success who uses their seeds and follows the instructions.

D. M. Ferry & Co. are very conservative, both in offering new sorts and in their claims for them when offered; but they take pains to inform themselves as to the true character of all new varieties, so if some much lauded novelties are not found in the Annual, the probability is they have tested them and found them of no value.

A request sent to the firm at Detroit, Michigan will bring you a copy of the Seed Annual for 1890 by return mail.

AMHERST ACKNOWLEDGMENTS.

"I ACKNOWLEDGE the good I received from Burdock Blood Bitters. I had constipation, irregular bowels and accumulation of wind, causing severe pain in my stomach. Two bottles of B. B. B. cured me. It is all you claim it to be."
ALLAN A. CLARKE, Amherst, N. S.

A letter from Dr. Hans Von Bulow.

The Knabe Pianos which I did not know before, have been chosen for my present Concert tour in the United States by my impressario and accepted by me on the recommendation of my friend, Bechstein, acquainted with their merits. Had I known these pianos as now I do, I would have chosen them by myself, as their sound and touch are more sympathetic to my ears and hands than all others of the country.

DR. HANS. VON BULOW.

New York, April, 6, 1889.
To Messrs. Wm Knabe & Co.

No. 1. the kind of butter that bring four cents per pound above market price.

Here is a little story of experience sent in by Mr. George R. Langford of Kentbridge, Ont., which may interest those who wish to make butter that will bring prices above the average. He writes that a sample bottle of butter color was given him. He tried it, found it to be good, and recommended it to his farmer friends. But the most valuable and interesting part of his letter relates to a talk he had with his merchants.

In speaking to them about this color, which was Wells, Richardson & Co's Improved Butter Color, they told him that they could pay from two to four cents more per pound for butter in which it was used. As it is the strongest color made, the dairyman who uses it gets the most color for the money, and also receives the most money for his butter when he comes to sell it.

A CURE FOR DEAFNESS.

THERE have been many remarkable cures of deafness made by the use of Hagyard's Yellow Oil, the great household remedy for pain, inflammation and soreness. Yellow Oil cures rheumatism, sore throat and croup and is useful internally and externally for all pains and injuries.

CONSUMPTION CURED.

An old physician, retired from practice, had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma and a Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, the recipe in German, French or English, with full directions for preparing and using. Sent by mail, by addressing, with stamp, naming this paper, W A Noves 820 Powers' Block, Rochester, N. Y.

SWIMMING NIAGARA.

Is an easy way to end life, and suffering dyspepsia to exist is an easy way to make it miserable. Taking Burdock Blood Bitters is an easy way to cure dyspepsia and it never fails to thoroughly tone and strengthen the entire system at the same time.

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