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**The Cultivation of Oats**

Lincoln College, Sorel, Feb, 4th 1885.

The principal grain cultivated in the Province of Quebec is oats. I say cultivated, though, in truth very little cultivation is given to this crop. Anything less likely to produce a full yield of this cereal than the customary method of treating it, would be difficult to find. The land is ploughed, generally in autumn, an uncertain quantity of seed is scattered over the surface, a couple of strokes of a worn out harrow, always in the same direction, completes the job, and, at harvest, the result is, as might be expected, in proportion to the trouble and time expended in the spring. If oats are worth growing, and nothing has ever been found to equal them as horse-food, they are worth taking pains about, and I think a few thoughts on the subject will not be thrown away on the readers of this Journal.

We cannot hope to grow such oats here as we see in Scotland. There, the climate is as well suited to them as it is unsuited to the growth of wheat, and, consequently they are the main crop of the country. I have seen them, at the Mark Lane market in London, weighing 47 lbs. a bushel, with a bright, silvery skin, and so full of meal, that they

almost appeared to be bursting out of their envelope.<sup>(1)</sup> In fact, I saw one sample, sent from the Lothians to be sold for seed, that the corn factors declared was "doctored" or sulphured, so beautiful was their appearance. Now, these same oats, sown in the south-east of England, on our best land, soon retrograded, and the second year from their importation only weighed, the usual weight with us, 37 lbs. a bushel! It was not an unusually hot year, but the climatic influence had thus affected them. The Scotch, then, have reason on their side, and the south of England farmers too, for we sow very few oats, particularly on the lighter soils; rarely more than sufficient for our horses.

Compare the growth of wheat in England and in Scotland. The figures I quote will probably surprise many of my readers, who do not seem to comprehend that nothing can be more contrary to their true interests than to grow crops for which their land is not suited, when they can exchange their own natural production for imported produce. Now, the counties of Norfolk and Suffolk grow hardly any oats, the farmers buy Russian oats, but, in revenge, these two counties grow 267,000 more acres of wheat and barley than does the whole of Scotland, and, a few years ago, the single county of Norfolk produced 1 290,373 more bushels of wheat than all the land north of the Tweed.

But, in spite of all this natural causes, originating in the soil and climate, are, or can be, modified in their results by cultivation, and hence we manage, if we think it advisable, to render the cultivation of oats in this province a matter of greater certainty and success than it has hitherto been.

The best soils for oats are the alluvial tracts which form the lower parts of valleys, such as are called "intervals" in the Eastern Townships. The richer class of granite soils are also well fitted for this crop. As a general rule, it may be stated, that whenever a soil has been formed by the alluvium of rocks or strata not characterised by the presence of too great an amount of aluminous or clayey matter, there we

(1) I saw a statement in the *Country G.* last week that oats in Scotland often weigh from 50 lbs. to 55 lbs per bushel. This is of course ridiculously untrue, and I wonder it escaped the editor's eye.  
A. R. J. F.

have a soil, which if drained and in proper condition, will produce excellent crops of the best varieties of oats. The finest crop I ever saw was grown on this sort of soil. On the "marge of the salt flood," near Brighton, on land as flat as a pancake and formed from the detritus of the chalk-hills of the South Downs my friend, William Rigden, grew 140 bushels of White Tartar oats to the acre: the piece was 11 acres in extent! I once grew 108 bushels per acre but it was on an old garden, so that don't count. Mr. Clare Sewell Read, in his report of the "Recent improvements in Norfolk farming" (1858), mentions a 46 acre field belonging to Mr. Hudson, of Castle Acre, which, in 1856 yielded the great return of 120 bushels an acre! The treatment of this piece of land is worth attention: previous crop, wheat; soon after harvest, the little couch-grass in the stubble was forked out; during the winter turnip tops, &c., were thrown on the land for the ewes, which were removed at night and folded elsewhere, and in February the field was regularly folded over with 2000 sheep, eating on every acre five tons of mangels, and  $\frac{1}{2}$  lb. of linseed cake each per day. The ground was then ploughed, and 2 cwt of guano (it would take 3 cwt of the present strength) an acre sown on the poorest portion of the field, white Tartar oats were drilled in March, and afterwards top-dressed with 1 cwt of nitrate of soda and 2 cwt. of common salt. The result was one of the most level and glorious crops of grain ever seen in Norfolk. The following year, the field produced the best crop of swedes in the county, and the barley which followed was when Mr. Read wrote, *showing signs of over-luxuriance*. This is the perfection of farming; to grow such excellent and profitable crop, and yet keep the land free from weeds and increasing in fertility.

On the clay soils along the St. Lawrence, from Montreal downward towards the sea, the cultivation of oats seems to be very precarious, and the yield greatly depends on the character of the seed time. When the ground has been properly mellowed by the frost, the sowing season dry, and the summer particularly during the month of July and the beginning of August, not too hot fair crops of oats, can be grown on these soils. I do not say fair crops are generally grown, because it would not be true for the general cultivation of the soil is about as bad as can be. Narrow ridges may be necessary for the surface drainage, the growth of root- and green-crops may be a difficult undertaking, but nothing can excuse the infamous ploughing, the negligent harrowing, and the total absence of the roller, so constantly observable all through these districts.

Oats are found to succeed best on clay land after a crop of clover and other grasses, and the stronger the grasses are, the better is the grain-crop. The roots of the grasses, no doubt, tend greatly to open up the soil, and to render it more friable and less apt to consolidate around the tender rootlets of the oat plant. But wherever potatoes have been grown on such heavy land, and the ploughing and general "fitting" of the piece properly carried out, I should prefer sowing barley, unless previous experience has proved the soil to be unsuited to the growth of that plant. Grass-seeds, too, take better, as a general rule, with barley than with any of the other cereals; the reason why I could never understand. Certain clays in England bear first-rate malting barley, but these have a chalk sub-soil, and in some queer way the *Chevalier* barley succeeds there, and the great malting firms of Essex, Cambridgeshire, and Hertfordshire, prefer their growth to any other; whereas, grown on our Kentish clays, the barley is entirely unfit for the brewer's purpose. As for grinding-barley, for pig-food, the cheapness of Indian corn does away with any necessity for sowing it; unless expense is no object; for no pork is to be compared with a four months old pig of good breed—Berkshire or Suffolk—fed on nothing but barley-

meal and skim-milk from the day of weaning. And, parenthetically, as to weaning pigs, we have a rather crafty plan of management: supposing a sow has nine pigs, we wean three at six weeks old, which three are kept moderately till they are put up to fatten, on barley-meal at first and then finished off on pease for about three weeks, for *bacon-hogs*. The next three are kept on the sow for another week or two, and are intended for pickled pork. The remainder are not weaned till they are nine weeks old, and are put on barley-meal, whey, or skim-milk, and sent to London weighing from 50 lbs. to 60 lbs. each. A perfectly grown pig, about 50 lbs. in weight, and neither too fat nor too lean, always fetches the very highest price in the market; a very difficult market it is to suit, but when suited, the most profitable one to deal with in the world.

But to return. There are several kinds of moory soils on which oats refuse to grow, especially those lying on a subsoil of mixed clay, sand, and oxide of iron, hardened together by infiltration from above, and known, here, as *hard-pan*. Both wheat and barley can be grown with tolerable success on such soils, but the cultivation of oats is a thankless, unprofitable, task. Liming would, doubtless, be highly useful on such land, and draining is indispensable; but with lime at 40c a bushel, and drain-pipes at \$10.00 a thousand, exclusive of carriage, there is not much chance of the reclamation of these hard-pan lands being carried out, at least not in our time.

I see, by the reports in the agricultural papers published in the United-States, that the price per rod of 16 $\frac{1}{2}$  feet for 3 $\frac{1}{2}$  feet drains is about 30 cents; and this for only digging the drain and laying the pipes, the filling up being done by horses and being altogether an extra job. It is clear to me that either the men do not understand the work, or that they earn extravagantly high wages; for my men in England, in 4 feet work, were well paid at 12 cents a rod, were the pick was not wanted, getting regularly through their six rods a day, in the short winter days, and filling up as fast as the pipes were laid. Allowing men here, to earn a dollar a day—quite enough as times go—18 cents a rod should be quite enough. I tried a small piece of drainage this autumn; the man I set about it did his work quite fast enough, but he could not keep his drain straight, though working, of course, with a line, and the bottom was like the waves of the sea; so I gave it up in despair. (1)

*Varieties of oats.*—With the exception of Black Tartan, all the oats I have met with in this country derive their origin from Scotland. They are the following:

*Potato oat.*—This is one of the finest of the early varieties both for quality and quantity of produce. It is probably the oldest early white variety at present in cultivation. It was introduced into Scotland towards the end of the last century, but the accounts of its origin are somewhat contradictory. According to a writer in the "Farmer's Magazine" for February, 1803, potato oats were first imported from South America in a small parcel containing a quantity not larger than would fill an ordinary snuff-box. They were inclosed in a larger package containing potatoes: hence their name. But another account states that they were first discovered growing in a field of potatoes in Cumberland in 1788. The latter is Lawson's account, and I think the true one; Dr Chevalier found the celebrated barley known by his name in the same position; and Lawson, the well-known seedsman of Edinburgh is, no doubt, to be trusted, both from his long experience, and his many opportunities of becoming acquainted with facts relating to the origin and introduction of agricultural plants.

(1) I'll try again, of course.

The grain of the potato oat is white, short, and plump, when well grown, and the straw is of a pale yellow colour, and moderately bulky. The young plants tiller freely when the seed is not too thickly sown, and the stems usually stand close and carry a large bushy ear, which gives the crop a remarkably rich and luxuriant appearance when fully shot out. The grain varies in weight from 36 lbs. to 47 lbs. a bushel. At the latter weight, 134 pickles weigh one drachm. The grain yields more meal per bushel, weight for weight, than any other variety. I heard, many years ago, when in Scotland, of a very fine sample of potato oats yielding 245 lbs. of meal from a quarter—8 bushels, weighing 368 lbs.—but, in general, what the Scotch millers call “even meal,” is considered pretty fair, that is, one hundred pounds of oats should give 50 lbs. of meal. The soils suited to the growth of the potato oat will rarely be found in the province of Quebec. Perhaps, some of the soils at the base of the Laurentide hills, and some of the lower slopes of the Conticook and St. Francis valleys might do; but I cannot recommend it as a rule, fine as it is when successfully grown. On our ordinary clay lands it is hopeless to attempt it. This oat sheds easily when ripe, and should therefore be cut early. See engraving, fig. 1.—A degenerated



Fig. 1.



Fig. 2.

descendant of the potato oat is the sort most commonly met with here; but the sooner it is got rid of the better, for it yields badly, and sheds worse than any oats I ever saw.

**Hopetown oat.**—The Hopetown oat was greatly admired on its first introduction. On good land in high condition it answers better than the potato oat, as it is stronger in the straw and, therefore, not so liable to lodge.

Till I went to Scotland, I always fancied that the *Sandy* oat was so called from its colour! Not at all: Lawson says that it was discovered in 1824, on the farm of Miltoun of Noth, Aberdeenshire by a herd-boy, Alexander Thomson, who found it growing in a bank of recently thrown up earth—*Sandy*, as all my Scotch friends know, is short for Alexander. The grain of this oat is neat and compact, but small,

and should therefore be crushed if given to horses, as otherwise they will be likely to swallow some of the pickles whole. The *Sandy* oat does well on soft, mossy land, as it will stand up when other oats, from over-luxuriance, are lodged.

**Sherriff oat.**—I strongly recommend the Department of Agriculture of the province of Quebec to import a few hundred bushels of this oat for seed. It is the earliest of all the white oats—new lots appear in the Edinburgh market a fortnight before any other kinds are ready; and earliness is a tremendously important point here. Individually, I do not care for any white oat, but if the prejudice in favour of them is ineradicable, the Sherriff is the sort best fitted for our climate and soil.

The above are the chief varieties of early white oats; the late sorts are numerous, but it is quite unnecessary to speak of them here, as, in nine seasons out of ten they would not ripen their seed, unless sown very early in the season.

**Dun oats.**—Somewhere about the year 1849, I bought some seed oats of the late Mr. Hewitt Davis. He called them “Sovereign” oats, but I believe them to have been the common *Dun* oats, and nothing but a hybrid between the old black variety (not the Tartar, by any means) and one of the ordinary sorts. They yielded fairly, but nothing like as well as our ordinary black Tartars, so I did not try them again. They seemed suited to inferior cold clay land, though Mr. Davis grew the Sovereign oats on a poor gravel, in the neighbourhood of Croydon, Surrey, where, he protested, his average crop was 96 bushels an acre! Mr. Davis was a thin sower; 3 pecks of wheat, 6 pecks of barley, 8 pecks of oats, and 4 pecks of winter beans, were his usual quantities. As to his yield per acre, I can say nothing positively, as I did not see the crops threshed; but, looking over the fields just before harvest, I must say that the appearance was magnificent. All the grain was sown in rows 12 inches apart, and the winter beans 27 inches; the land, all crops having been horse-hoed, was as clean as a garden. And the farm was not on a small scale either, there having been 850 acres under the plough. I should like to see it in a dry year, for when I went over it we had had a dripping summer, which just suited it.

**Tartar, or Tartarian oats.** v. f. 2.—Ten years ago, when I tried to introduce the Black Tartars into the Eastern Townships, I was gravely told that the horses would not touch them. They had been tried, said the farmers, and they could not give them away! The same absurd sort of prejudice I observe to exist in the *Sorel* market, clover-hay is unsalable; nothing but timothy stands a chance of bringing a price. Mr. Cochrane, of Hillhurst, however, had seen too much of the world to indulge in such fantasies, and, on my recommendation, imported seed for 20 acres, the yield of which amounted to 1500 bushels; upwards of 72 bushels an acre! His horses, like their master, were devoid of prejudice, and devoured their rations with equal zest, whether they were composed of the white or of the black sorts. The great trainers of Newmarket and Yorkshire, the Days, the Scotts, and others, refuse the finest samples of Scotch potato oats in favour of the Tartars. Like the Scotch *late* oats, the meal of the Tartars is *stouty*, and of superior quality, making a *sharp* porridge. From experiments I carried on this summer on the Lincoln College farm with three different kinds of oats, I deduce the following conclusions.

The ordinary white oats of the country—as descendant, probably, of the Scotch potato oat—sown after potatoes, require very thick seeding; are short in the straw; do not tiller much; and, though they stand up well, do not head out regularly, nor do they yield as they ought to do.

The *White Tartars*, imported last spring—sown on a one-year “*pacage*,” i. e. an oat stubble grazed without seeding down—were satisfied with a moderate amount of seed per

acre; were shortish in the straw; tillered well; stood perfectly; yielded well; but were at least eight days longer in ripening than their black brothers.

**Black Tartars.**—These oats, bought of Mr. William Evans, of Montreal, and grown in that neighbourhood, received exactly the same treatment and were sown on the same piece of land as the white Tartars. They require a fair amount of seed; were long in the straw—many straws measured four feet six inches in length; they tillered amazingly; went down very little for so bulky a crop; yield at least 8 bushels an acre more than the white Tartars, and, certainly 12 bushels an acre more than the country oats; and, though not sown till the first of June, were ready for harvest on the 1st of September; whereas the white country oats sown on the 5th of May were hardly ready on the 17th of August. I should say that the common oats were sown on land which was at least a week earlier in general effects than the land where the black Tartars were grown; in other words, the black Tartars if sown on the same piece and at the same time as the common white oats would, as far as I can judge, have been fit to cut ten days before the others. I have no interest to serve in the matter, as I have no seed to sell. There are no less than 54 varieties of oats described in "Lawson's Agriculturist's Manual," and of all these I most earnestly recommend the Black Tartars to the attention of my brother farmers. It was only last week, I was told that the people of St. Bathélemi, a parish in the rear of Berthier, between the St. Lawrence and the Laurentian Hills, can grow neither oats nor: pease the oats go down and lodge; the pease never stop growing and blooming, and, in consequence, neither crop ripens its seed! The soil is so rich, according to my informant, that the evil consequences invariably ensue, if any attempt is made to sow either of these two crops. It is very odd! There must be some way out of the difficulty. I will attack the pea question, when I come to treat of that plant; but, at present, I will simply describe my way of cultivating oats, and if any of the farmers who are fortunate enough to possess too rich a soil will try my system, I believe they will find a very great difference next harvest in the state of their oat-crop. Since writing the above, I see that Mr. Hewitt Davis died July 15th 1884.

**Quantity of seed per acre.**—A very important element in the cultivation of oats in a dry, warm climate, like ours, is the quantity of seed that should be sown per acre. Six bushels are commonly sown in Scotland, even seven bushels, when the land is not in good condition (1); but it is pretty generally acknowledged that a smaller quantity of seed is required in a dry climate than in a moist one, and for this reason: a thin sown crop will resist more drought than a thicker one, simply because the roots of the plants being fewer, they are stronger and strike deeper into the moist sub-soil. The common occurrence of a thickly sown crop turning yellow during a continued drought, while the thinner sown one retained its green hue under the same circumstances, cannot have escaped the notice of even the most unobservant, and certainly if the growing of oats in our dry climate is ever to equal that of the moister, cooler, and, in this respect, more highly favoured districts of the North of England and Scotland, thin and early sowing must be adopted. **Observation: thin and early.** for if oats are sown in June, as I have frequently seen happen— I have even been obliged to do it myself—thin sowing will not answer the purpose intended. If three bushels an acre are enough seed at the end of April, four bushels will not be too much at the beginning of June.

(1) In speaking of the quantity of seed sown per acre in Scotland, I beg to say that I am perfectly well aware that the Scotch acre contains five roods. Eight bushels of potato oats per Scotch acre is not an uncommon seeding even now.

If land is in good condition, my own belief is that three bushels per imperial acre, that is  $10\frac{1}{2}$  pecks per *arpent*, are enough seed at the end of April or the first week in May. I would not sow less than this quantity anyhow, but I think it will do. As the season advances, I would increase the dose, a peck a week, and in June, I would sow at least four bushels to the acre— $13\frac{1}{2}$  pecks per *arpent*. Early sown grain has an opportunity of tillering; sown late, it must shoot up at once into the grain-bearing stem. Did any body ever see a June sown crop of oats standing too thick? I never did.

**Preparation of the land.**—Grain drills are rare in the province of Quebec. I wish they were not, for they simplify matters most amazingly. Sowing, or broadcast machines are the next best means of distributing the seed, but they do not work kindly on ley-ground, the case of which we will first consider.

The land was, I presume, ploughed in the autumn with a nicely turned furrow  $6 \times 9$  inches, or, if you prefer it  $7 \times 10$ . As soon as the piece will work kindly—I would not wait for the dust to fly—set your well-sharpened harrows to work, and keep at it, in a line with the furrows and across them, until you can draw the toe of your boot across the land without the little groove being deeper in one place than in another. Then start the drill, with coulter well weighted, and try to deposit the seed at least  $2\frac{1}{2}$  inches deep— $3\frac{1}{2}$  inches will not hurt—a couple of strokes of the harrows will suffice to cover the seed, and these should be along the furrows. Horses should step quickly in harrowing, the action of the implement will be more of a *shake* than if they go slowly.

With the broadcast machine, the land should be well harrowed before sowing, and the cultivator teeth should not be set too deep for fear of dragging up the turf; the usual two strokes of the harrow should complete the job.

If there is no machine on the farm the work must be done by hand, and very irregular sowing is too frequently the consequence. What with the wind and other impediments, it is very seldom one sees a really level-sown piece of grain. And there is another trouble: if the ploughing has been carelessly done, the grain will be too deeply buried in one place and not be covered at all in another. To avoid the too deep buried, a stroke of the harrows is sometimes given before the seed; the consequence of which is that the grain is barely covered at all, and, in dry summers the roots get scalded. All grain should be sown much deeper than is usually practised here. On land that has grown a matured crop of roots or corn, I should not sow oats. Barley or wheat will answer better. However, if oats must be had, they can be put in as before with drill or broadcast-machine; if these are not to be had, a common grubber will bury the seed deep enough if the piece be well harrowed before sowing.

As we have sown our oats in the proper place, that is on a ley, we have no grass-seeds to trouble us. What shall we do, then, with the oats? Leave them to grow untouched till harvest? I think not! If you have no roller, you should make one; a good hard wood tree, the heavier the better, with a pair of shafts, and a tray to hold stones for additional weight, will do. Light land may be rolled immediately after sowing; on heavy land, I prefer waiting till the grain is well up. A week from rolling a pair of harrows passed across the ridges will break any crust that may have been formed after a heavy rain. Striking out the furrows with the double mould-board plough and water furrowing will, of course, not be neglected. In this work, our French-Canadian brothers are very skillful; but I wish, as the greater part of their heavy land is ploughed into narrow ridges, they would try to harrow with a long whippetree, so that both horses could walk in the open furrows and thus avoid treading the land. In our South East of England farming, the drills have their shafts quartered,

the harrows cover a ridge—the horses in the open furrows—and even the roller is, so to speak, broken backed, rolling half each of two ridges. We find that though cross harrowing is the right practice as a rule, it is better to omit it than to let the horses tread the land. The Scotch make no ridge less than eighteen feet wide, even on their heaviest land; but our soils are so strong that more than eight feet three inches would be injurious to our crops. Some of the finest farms in the county of Essex are all laid into five feet ridges, and the crops grown are immense. Of course, after heavy manuring and real cultivation, the land becomes tender and indeed, its nature is utterly changed, and then the width of the ridges is, comparatively, a matter of indifference.

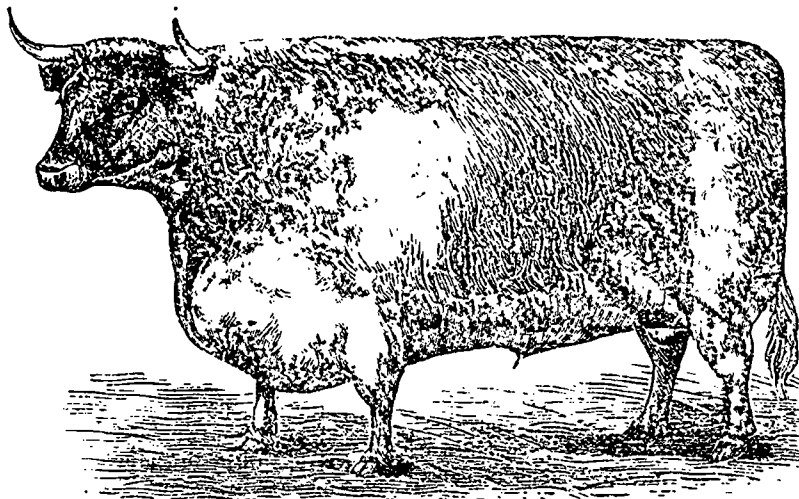
*Harvesting.* Cut your oats so green that every body who sees you laughs at your folly! In the harvest of 1848, a friend of mine in Scotland did this, and a neighbouring farmer speaking to a miller about it was requested by him to look at a parcel of new oats he had just received. After examination, the farmer admitted that they were certainly as fine oats as he had ever seen. "Well," replied the miller, "these are Mr —'s oats that you and others have been laughing at him for cutting so soon!"

Mr. Stephens—v. The Book of the Farm—in speaking of the proper time to cut oats: "Upon one occasion I cut down

F.—The most common rotation, employed by the best farmers, is, for the first year, corn on inverted sod. If the sod has been top-dressed with manure the previous autumn, and the manure, as soon as spread, finely broken up with a slant-tooth harrow, it will greatly increase the crop. Best of all is to apply it with a Kemp spreader, which pulverizes and spreads it with perfect evenness; but as one of these machines costs over \$100, small farmers think they cannot afford it; while on farms of two or three hundred acres or more, they are a thing of great economy. If you cannot get manure in the fall, spread the winter accumulations as evenly as you can in winter, which will be next best. If you do all the work well, that manure will tell, by the big growth it will make.

I.—Well, what comes after the corn?

F.—Oats or barley, put in very early the following spring. If your land is well underdrained, you may work it almost as soon as the frost is out; if not drained but water-soaked, you may have to wait two or three weeks, and have half a crop. Then after the oats and barley, put in winter wheat in September. If you plow the stubble hastily, and sow or drill in the wheat after one harrowing, you may perhaps have twelve or fifteen bushels an acre; but if you plow deep and thoroughly, harrow repeatedly with the best implements, and



HEREFORD-SHORTHORN, v p. 39.

a few stooks of potato oats when quite green, though full in the ear, to allow carts to pass to a place destined for the site of a hay-stack, and after standing till the rest of the field was brought in, they were threshed with the flail by themselves, and the sample was the most beautiful grain I ever saw."

ARTHUR R. JENNER FUST.

#### Rotation, Weeds, and Seeding.

The following is the substance of a conversation which recently took place between an inquirer and a successful farmer, and it may afford useful hints to some of our readers:

I.—What is the best way to keep Canada thistles out of my pastures, and other weeds?

F.—If the land has been kept clean before it was seeded down to pasture there will be no trouble. Rotation, with thorough cultivation, will generally keep farms clear of weeds.

I.—What is the best rotation; what would you recommend?

make the whole a bed of loosened earth like an ashheap, you may have twenty-five or thirty bushels. Manure spread over the surface before plowing, and thus well worked in, will do no harm; and a top-dressing of fine manure after the last plowing and before drilling in the seed, will add to the crop, prevent winter-killing, and make the grass or clover seed more sure to grow.

I.—When would you sow the grass seed?

F.—If you wish to have timothy and clover, sow the timothy when you put in the wheat or soon after, and the clover early the next spring, as young clover plants would be winter-killed if sown in autumn. If it does well, there will be a dense growth several inches high by the time you cut the wheat. Do not turn cattle on it, but let it grow, as cattle will tread down the young plants. Next year, cut the heavy growth for hay, and then you may make pasture of it for one, two, or three years, as you like. The course will then be—corn, barley, wheat, meadow, pasture five, six, or seven years, according to the number of fields you have in the course, and the number of years in pasture.

I.—But I am afraid of Canada thistles! I am afraid that

these and other weeds will continue to infest my pastures. How can I get rid of them? How can I have a neat, clean field? How can I kill Canada thistles?

F.—The most thorough way to clear out the weeds is to summer-fallow. You may put this fallow anywhere in the rotation. You may take a summer for it the year before the corn is planted, but the best time would be after the barley and oats, and all that fall, and all the next summer till time to sow winter wheat. But let me tell you what a summer fallow is, and what it is not. It is not plowing once in a month or two, letting the weeds and Canada thistles have a good breathing spell and rank growth between. This will never kill them. But you must plow often enough—every week if necessary—to keep all the growth under—not a green thing visible—and if the whole field is treated in this style, no Canada thistle will ever be seen again. This mellow bed of earth will give you a heavy crop of wheat—probably twice as great as from careless preparation. I have often tried it, and I know what I am talking about. Scattered weeds in pastures, as mulleins, horse-thistles, &c., may be easily killed by hand before or by blossoming time; and your pasture may be kept in a neat condition by going over it with a reaping machine with the knives set a foot high, just as the grass is heading out. It will cut many of the weeds if there, and prevent the grass becoming weakened by the ripening of the seed. (1)

I.—Is there any other rotation which I can adopt, if it comes handy?

F.—Yes; you can vary it in many ways. One way which I have tried is this: Plant a rather small early corn—plant thickly, and after a good manuring. It will ripen about the first of September. Cut it up as soon as the grains are well glazed, and tie it in small bundles, the band just above the ears, so as to husk without untying. These bundles are easily thrown at once crosswise on a wagon, and drawn to grass ground near the barn, where they are set in shocks. I find that such shocks stand a great deal better than set in the common way; they never fall over, and the excellent fodder more than pays for the labor. When we husk corn, the stalks are there already, and the corn is cribbed as fast as husked. But I must go back a little, and mention that as soon as the corn is off, the whole field is thoroughly plowed and thoroughly harrowed, and the wheat drilled in. This mode has failed with many farmers, because they did not plant early corn, and get it off early enough to allow for thorough preparation. The wheat was put in in a hurry, and made an uncertain growth at best. You may seed to grass on the wheat, or sow barley and seed on that. Another rotation is that adopted on the Houghton farm, described on p. 795 of the COUNTRY GENTLEMAN, which is like the preceding, with root crops between the corn and oats or barley.

#### Two New Wheat Insects—Inquiries.

I have recently received specimens of an insect—larva of a moth—from Saginaw, Huron and Wexford counties, with the report that it is doing no little damage to the wheat. It is said to “hollow out” the berry, by eating the flour. I should like very much to know how general this insect is, how much damage it is doing, when and how it works, and to receive specimens from every place where it has been observed. The caterpillar is light colored, with faint stripes, and brown head, about half an inch long.

I have received from the eastern part of the State some

(1) If pastures are properly fed down, there is no danger of grass going to seed. The utter neglect of all pastures in this province is a sad thing.

A. R. J. F.

larval insects—hymenopterous—which work above the joints in the wheat straw. In each straw I find from six to twelve of the larvæ. They are from a half inch to two inches above the joint, and the straw where they are found, for a distance, varying from a half inch to more than an inch, is solid instead of hollow. The larvæ are imbedded in small oval cells in this solid mass. These cells are a little more than one-eighth of an inch long. The larva, which is yellowish-white, is a little less than one-eighth of an inch. It has a few short hairs and thirteen joints besides the head. It has very small, dark jaws. The pupa is a little longer than the larva. The legs and nine-jointed antennæ show plainly, color same as larva, antennæ darker. The pupæ may all turn dark soon. The pupæ have just appeared. I have none of the flies yet. I wish to urge the same in regard to this insect as to the other. Let all send information and specimens. By copying this, our agricultural papers can help a good cause. These insects are new, and in attacking one of our most important crops may do great harm. The fullest and most speedy investigation is very desirable.

A. J. COOK.

*Agricultural College, Mich., Sept.*

#### Milk Yields of Short-Horn Cows.

EDS. COUNTRY GENTLEMAN—Having been a reader of your paper for the past year, and seeing so much about large milk records, I think I will have to give you some Short-Horn milk records, which I have kept last season and this:

Rhoda gave, in 1883, 59 lbs. in one day, 1,664½ lbs. in one month, and 8,115 lbs. in six months. This year she came in on the 5th of March, and I commenced weighing her milk the 10th. She has made 63 lbs. in one day, 1,758 lbs. in one month, and 9,055½ lbs. to date—an average of over 44 lbs. per day for 203 days, and is giving 40 lbs. per day now.

Red Rose, a daughter of Rhoda, gave last season 45½ lbs. in one day, and 1,319½ lbs. in one month. This year she has given 54 lbs. in one day, 1,477½ lbs. in one month, and 5,033 lbs. in 112 days, to date, and is now giving 40 to 43 lbs. per day.

Brindle made 55 lbs. in one day, 1,375½ lbs. in one month, and 2,653½ lbs. in two months. This year she made 58 lbs. in one day, 1,601½ lbs. in one month, and 2,888 lbs. in two months.

Trinket, half-sister to Rhoda, dropped her first calf May 17th, 1883, when only 20 months old, and before she was two years old had made 33½ lbs. in one day, and 902 lbs. in one month. This year, as a two year old, she has made 46½ lbs. in one day, and 1,243½ lbs. in one month. She was milked morning and evening, and did not have to nip off the ends of the day before and the day after to get 46½ lbs.

I have also a heifer 18 months old, out of Rhoda, which has been giving milk since the middle of May, and has not had a calf yet.

*Warren County, Ill., Sept. 29*

F. M. WATSON.

#### Tomatoes in Glass.

I have been told by various neighbors for years past that it is as easy to keep tomatoes in glass as in tin, and have read the same, I think, in the COUNTRY GENTLEMAN. On making inquiries in regard to the matter, it has sometimes been found that success is attributed to some particular step in the process, although it is often said that tomatoes need only the attention that everything else does.

“How do you can tomatoes in glass?” I asked of Mrs.

V—

"Just as I do anything else," was the reply, "and I will gladly put up a dozen cans for you and keep them in my house until you want them, giving you a new can for every one that spoils."

In one previous instance, a neighbor sliced her fruit and barely warmed it. Her success appeared to be perfect, but I failed. Another boiled for three hours, skimming off the scum frequently. That also failed with me. One salted the water. Another said: "Run the can over and put the rubber on well wet with the running-over liquid." Another removed all the pulp and seeds. I would not try that, for there is nothing left fit to eat. In one instance, I found the claim of success a mere pretence. The fruit looked well, but on opening, was found to be spoiled.

I watched my new neighbor with a good deal of interest, and assisted in the process.

"Oh, don't put those cores in," she cried; "I never do that. Throw out all coarse, bunched portions."

The can is filled carefully, the edge rubbed scrupulously dry, the top and rubber both served in the same manner. "I do this," said Mrs. V—, in answer to my inquiry, "with all kinds of fruit."

I copied the process in every particular at home, and succeeded in keeping tomatoes in glass—for there was no charm in the fact that they had been put up by other hands, and were kept in a neighbor's house. I am also succeeding this year, and besides, lose less of other fruit, on account, I believe, of the important fact of having tops and rubbers entirely clean and dry.

Rubbers which have become hard may be softened by leaving them in hot water a few minutes, and then rubbing or rolling them briskly between the palms.

Cans need not be heated in any way before filling. Simply fold a wet towel to several thicknesses, and set the empty can on the table upon this. It is then ready for the boiling hot liquid and fruit.

H. S. Hightstown, N. J.

### Our Engravings.

*The Horse's mouth.*—See article on.

*Potato and Tartarian Oats.*—It will be seen from these engravings, that while the former has its branches spreading equally on all sides, shortening gradually towards the top of the spike in a conical form, the panicles being beardless, the Tartarian has its panicles shorter, all on the same side of the *rachis* (i. e. backbone or spine), and bearded. In fact, unless grown on very good soil, the beards of the Tartars take up a good deal of room in the bushel, which accounts for their very moderate weight. Observe the dependent form of the ear.

*Imported Jersey cow.*—An unexaggerated picture of a genuine old-fashioned Jersey. It must be a pleasure to milk her.

Our illustration this month (re-engraved from a large plate in the London Live Stock Journal) represents a cross-bred ox, Hereford on Short-Horn, property of Robert Wortley of Suffolk, Eng., to which were awarded three great prizes, aggregating nearly a thousand dollars, at the recent Smithfield Show. Our special correspondent at that exhibition said of him (COUNTRY GENTLEMAN Jan. 8, p. 33): "His weight is 23 cwt. 1 qr. 13 lbs., and one of the best finished animals seen for years. He is wonderful in top, great in girth, and, though his head is not of the handsomest, he is a marvelous beast." The Live Stock Journal remarks, editorially: "His victory was a foregone conclusion. He is not only the heaviest animal in the hall, but is also handsomely and remarkably well filled up. He is the result of a happy combination of the Hereford and Short-Horn breeds; and one could hardly wish

to have a more useful stamp of a meat-producing animal." In another place, a correspondent of the same paper writes: "In the steer and ox class over three years old, Mr. Robt. Wordley won very easily with his very handsome Hereford and Short-Horn cross, which won the champion prize at Norwich the other week. He is one of the finest cross-bred animals that has ever appeared in the Agricultural Hall. He is three years and six months old, was bred by the late Chas. Doe of Burwaton, Bridgenorth, Salop, got by a Hereford bull, and out of a Short-Horn cow. It cannot be said that he is perfect in symmetry, but his few faults in this respect are amply compensated for by his massive proportions, great weight, and very rich and evenly-laid-on cover of flesh and fat."

### How to tell the age of a horse.

By Prof. J. M. Heard.—New York.

#### PART I.

#### CHAPTER I.

To persons buying, and selling, or trading in horses, it is of the highest importance that a nearly correct opinion of the age of the animal may be formed.

At a very early period this fact was fully recognized, and an attempt was made to formulate rules for the guidance of persons interested in the age of the horse.



Fig. 1.—Showing lower Jaw at 24 years. AA. Central Nippers. BB Middle Nippers, CC. Corner Nippers.

Of course, every trained horseman will recognize the lightness and elasticity of step of the youthful horse as compared with middle-aged or older animals.

One of the general indications of age is the angular appearance of the lower jaw as seen in old horses; there is, also, a different appearance to the eyes and countenance generally. These, however, are only general appearances, and liable to considerable variation in different individuals.



Fig. 2.—Shows a Lower Jaw at 34 years.

To definitely get at the age of horses, there must be recognized some structure of the animal which is little liable to change, and which can easily be examined. The only organs answering this purpose are the teeth, and even the teeth are not an infallible guide to age, as we occasionally find devia-



tions from the usual standard. Yet they are the only guide that can be safely trusted with any degree of confidence.

Rules for ascertaining the age by an inspection of the teeth are based on a very large number of investigations, and any deviation therefrom will be found rare, and an exception to the general principles laid down in the following pages.

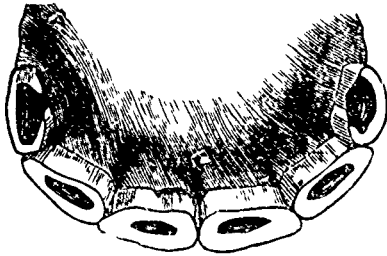


Fig. 3.—Shows the Lower Jaw at 5 years.

CHAPTER II.

The incisors of the lower jaw are the teeth that are generally examined to determine the age of the horse. These are the six teeth situated in the front of the jaw.

The tushes are a partial indication, and might assist the judgment in a doubtful case, but it is very seldom that much

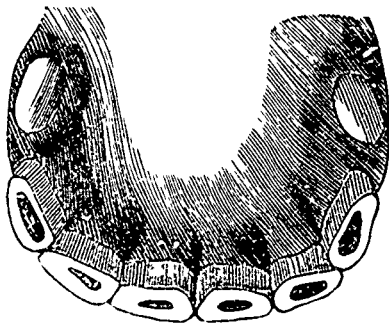


Fig. 4.—Shows the Lower Jaw at 6 years

weight is given to, or in fact much notice taken of the appearance of any of the teeth, except the incisors of the lower jaw.

In this description we shall speak of the six incisors as *nippers*, and the middle pair, or those situated in the middle of the row and at the extreme front (see Fig. 1), A A, will be

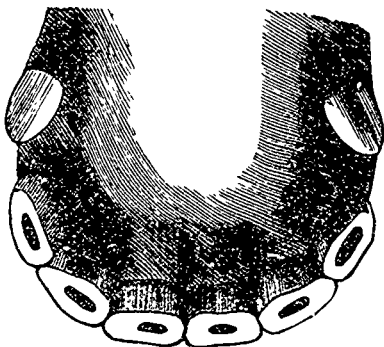


Fig. 5.—Shows a Lower Jaw at 7 years.

described as the *central nippers*. The second pair, B B, are the *middle nippers*, and the third pair, C C, are the *corner nippers*. As will be seen, this figure represents the appearance of the nippers in the lower jaw at 2½ years.

The central nippers are just through the gum, and are

therefore the first permanent pair. The middle and corner nippers in this engraving represent the temporary teeth which will remain for a year and two years respectively from this period.



Fig. 6.—Shows a Lower Jaw at 8 years

We must here notice the difference in size between the temporary and permanent teeth. It is seen at a glance that the permanent teeth are very much larger than the temporary. At this age we find one large pair, only recently cut, and two small pairs, one of which will give way to a permanent pair at 3½ years, and the other pair will be replaced by permanent teeth at 4½ to 5 years.

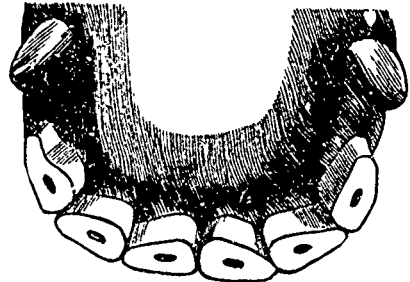


Fig. 7.—Shows a Lower Jaw at 9 years

When we come to about this age we notice (see Fig. 2) that a radical change has taken place. As will be seen, the second pair, or middle temporary nippers, have given way and in their place has appeared the second pair of permanent nippers, which at this age have the same appearance that the central pair did at 2½ years. The central nippers themselves have changed somewhat, and are commencing to show the wear to which they have been subjected since they were cut. We notice that the marks are not so large nor as deep as in Fig. 1. We still have the temporary corner nippers, which.

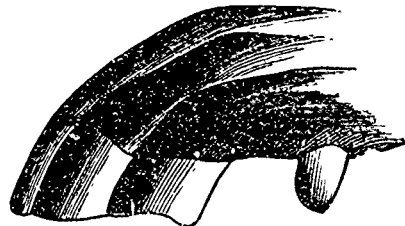


Fig. 8.—Side View of an Upper Jaw at 9 years, showing the Wear in the Corner Nippers

of course, are very much smaller than either of the permanent pairs. However, no mistake need be made, as it will be easily seen that the middle pair have not been cut for any length of time.

The next step in our description brings us to Fig. 3, which

shows the condition of the teeth at 4½ to 5 years old. Here we have what is termed a full mouth; that is, all the permanent nippers are up, and the temporary ones of course are all shed. Changes, too, have taken place in the permanent teeth; which we must examine very closely, as we have no brake to

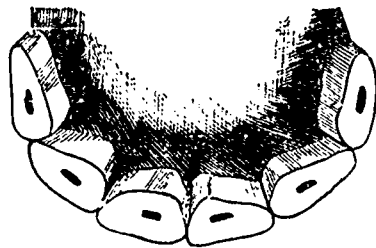


Fig. 9.—Shows a Lower Jaw at 10 years.

stop us now, as we had while the temporary teeth were in their places.

We could then say, "This horse is not 5 years old, or he is not 4 years old, as he shows one or two pairs of temporary teeth." Now we must look entirely to the marks or spots in the middle of the teeth for our guidance.

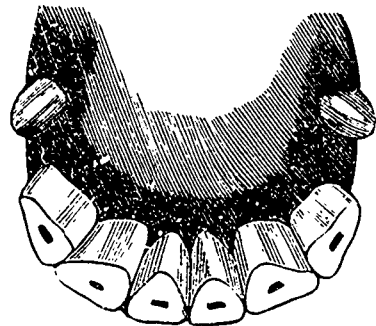


Fig. 10.—Shows a Lower Jaw at 11 years.

Unprincipled dealers, availing themselves of the services of skilled dentists, attempt to imitate this age more than any other perhaps in old horses. The novice in such matters should always be on his guard against such fraud, for to an ordinary observer the teeth prepared as described, very much resemble those of a 5-year-old horse.

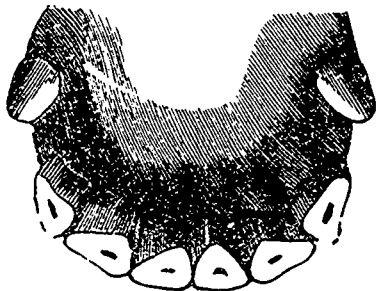


Fig. 11.—Shows a Lower Jaw at 12 years.

In the accompanying engraving, Fig. 3, it will be seen that the corner nippers have about the same appearance as the middle pair in Fig. 2, and the central pair in Fig. 1. They have not been up long enough to sustain any appreciable wear, and they have very deep, full marks. The central pair, however, are worn, so that a considerable proportion of the mark has disappeared, leaving only a small black spot;

but it will be noticed that the shape of the tooth has not changed as yet, as it will when the animal grows older.

Instead of the oval shape that the teeth present now, at 9 years and after, they will be more triangular. This appearance is well represented in Fig. 14. The middle nippers at 5 years have considerably changed from the appearance

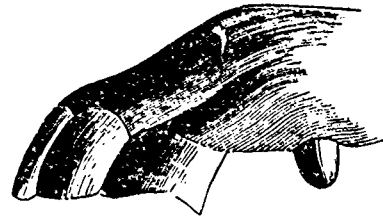


Fig. 12.—Side View of Front and Upper Jaw at 12 Years of Age, Showing the Wear of the Corner Nippers.

of a year previous. The marks are not so large, but still preserve a respectable size and depth.

We find in Fig. 4, which represents a 6-year-old mouth, that the central nippers have lost all their marks except a comparatively small speck. The middle pair have lost much of the mark, as seen at 5 years old in Fig. 3, and they resemble the central pair in that figure. The corner nippers, too, have lost some of their full marks which they had a year previous, but they are still large. At this age, too, the tushes

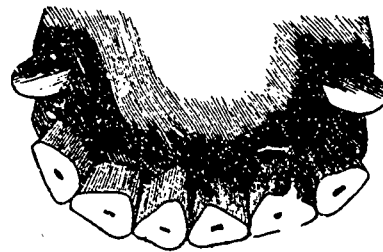


Fig. 13.—Shows a Lower Jaw at 13 Years

are completely up in the male, but do not show any perceptible wear.

The changes from six to seven years old are not very remarkable. The teeth all show more wear, and the marks are not so plain, of course. The greatest difference is in the corner nippers, where the marks are considerably smaller than at six years, but much larger than in the central or middle pairs.

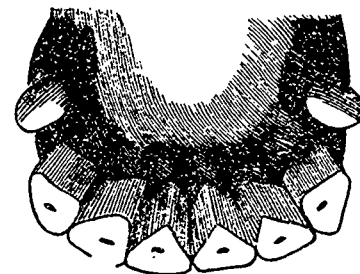


Fig. 14.—Shows the Lower Jaw at 14 Years.

In Fig. 6, which represents the teeth at eight years of age, we see that they show about the same-sized marks; which are all quite small. As yet the teeth remain quite oval in form, but in a short time they become somewhat triangular, especially the central pair of nippers.

In Fig. 7, showing the teeth at nine years old, the marks proper have mostly disappeared, and there remains only a

small black speck. The central nippers are slightly triangular in shape. The tushes are much more rounded at the points than before.

In Fig. 8, which is a side view of the front of the upper jaw at 9 years of age, the wear to the corner nippers is shown.

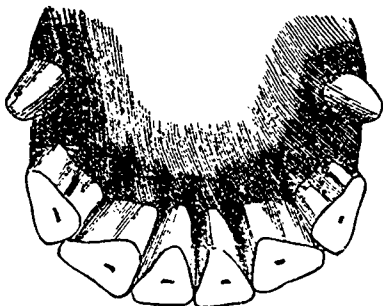


Fig. 15.—Shows a Lower Jaw at 15 Years.

In Fig. 9, showing the teeth at ten years of age, we see the central nippers quite triangular, with a tendency to take on that form in the middle pair. The marks are all obliterated except a very small speck. The teeth are also longer, and project forward more than in younger horses.

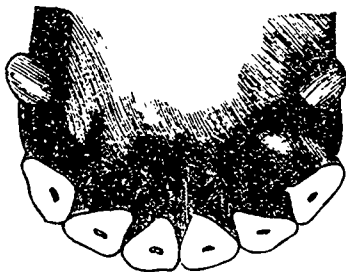


Fig. 16.—Shows a Lower Jaw at 18 Years

The triangular shape increases in Fig. 10, eleven years old, in all the nippers, even the corner pair showing a tendency in that direction. The tushes are much rounder at the points, and the nippers are longer and project forward more. We notice that the central pair are quite triangular.

The teeth grow more and more triangular in Fig. 11, twelve years of age; and we observe in Fig. 12, a side view



Fig. 17.—Shows a Lower Jaw at 19 Years

of the front of the upper jaw, which shows the form of the corner nippers and tushes. It is seen that the front of the corner nipper is worn even with the middle pair; on the back part of the corner nipper the wear is not so pronounced, and we see a sharp elongated projection. The difference between this projection at twelve years from that at nine years, will be noticed by examining Figs. 12 and 8.

In Fig. 13, a lower jaw at thirteen years of age, there is nothing in particular to note except that the triangular shape continues to increase.

In Fig. 14, showing the teeth at fourteen years old, the nippers are somewhat longer, and project forward more and more, as they will continue to do as the animal grows older.

In Fig. 15, we see the tendency to a triangular shape increasing, and the teeth becoming longer; they also have a more oblique projection forward.

In Fig. 16, eighteen years old, the nippers are all more triangular, the corner ones being less triangular than the others.



Fig. 18.—Shows a Lower Jaw at 20 Years.

In Fig. 17 the same points which have been described in the foregoing pages, will be seen to be somewhat intensified.

In an animal twenty years old (see Fig. 18) the nippers are all very triangular, very long, and project forward in a very great degree. The tushes are very round at the points.

In Fig. 19 are represented the changes in the shape of the teeth from the young to the very old animals. At *a* we see

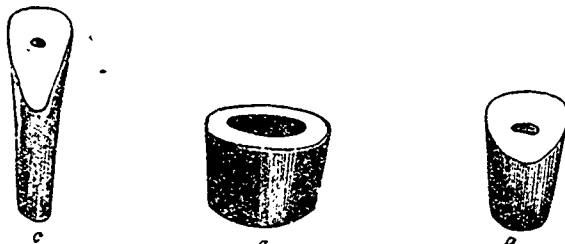


Fig. 19.

a representation of a central nipper at five years old; at *b* it is shown as it looks at nine years, when it becomes somewhat triangular, and has lost the marks. At *c* we see the same tooth at the age of eighteen years. The difference in shape will be noticed at a glance.

Mr. Heard does not, I presume, intend to say that any one can do more than approximate to the age of a horse after eight years old. The article is in a handy form, and should be kept for reference. Mares, as a rule, have no tushes. Some horses, again, show tushes so very early, that, as regards those teeth alone, an early-foaled 4-year old may look like a late-foaled 5-year-old. A. R. J. F.

Dear Sir,—I have taken the liberty of sending you a circular of the breeding of a bull that I have bought to head my herd of Shorthorns, which now numbers forty females. I am taking up a car of mostly young bulls to the sale at Toronto. I nearly always have a supply of bull calves on hand. I am also breeding White Chester and Berkshire Hogs; my Berkshires are from imported stock and prize-winners both in England and Ontario. I bought a very fine sow last week from J. G. Snell and Bro. Served Jan. 8th by Lewiston Duke which he says is the best boar that he ever owned or ever saw. They sold him two weeks ago for \$300. to Mr. H. Gentry Mo. If I succeed in raising pigs from that sow, I shall get \$40. per pair at six weeks old. I have a sow of the Sally family, a fine one, due to pig the 15th of March by Prince Royal; am booking her pigs at \$25. per pair at six weeks old. I sell White Chesters a \$12. per pair at same age. If you should be wanting any thing in my line should be happy to supply you.

If you come to Knowlton, I should like very much to have you come and see my stock. I am, Dear Sir, yours truly,  
**J. S. WILLIAMS.**

Mr. Jenner Fust rather envies the Knowlton people, and for more reasons than one they have good land, good water, good fish, and now they have a Bates' bull. What more can be wanting to make them perfectly happy?

**FOOD AND THE QUALITY OF MILK.**

**EDS COUNTRY GENTLEMAN**—The commonly expressed opinion among scientific people, that the quality of milk, or, to speak more particularly, the proportion of fat or butter contained in it, is not affected by the quality of the food used, is, so far as my knowledge extends, universally opposed to the experience of practical dairymen. I have been used to feeding cows for butter for many years, and during that time have become acquainted with a large number of farmers, milkmen and dairymen; and my own personal experience, as well as the opinions and beliefs of these practical men, have always been opposed to this view taught by the German schools, and adopted, as it seems, in this country without question. At first sight, the theory clearly seems opposed to all reason and fact, because it is admitted that there are certain foods that will cause an animal to lay on fat instead of forming bone or muscle; and we are taught, too, that certain kinds of food that may be deficient in the elements of bone growth, will produce weakness and disease of the bony frame of an animal while an excess of carbonaceous food, with a deficiency of muscle-forming matter, is equally defective in supplying the necessities of an animal. And as there is a very close analogy, if not an actual connection or alternation, between the fat of the tissues of a cow and the fat of the milk, it certainly would seem that as the quality of the food has a great deal to do with increasing the quality of fat deposited in the tissues, so it must have a good deal to do with the quantity of fat deposited in the milk glands and conveyed from them into the milk.

Now it is very well known to farmers, and especially to those who produce milk either for sale or for butter-making, that the different varieties of grasses affect not only the quantity but the quality of the milk, and that this effect is produced by the hay as well as by the grass, and the same is true of the various foods used to increase the productive effect of the coarse fodder. A farmer who wants milk to sell will not feed corn meal or cottonseed meal, because these will not only make the milk rich in cream, but often actually less in quantity. I have noticed this very clearly when feeding cows for fattening, when corn meal has been added in much larger quantities to the ordinary food. One cow whose milk was taken for churning while she was fattening (a good cow, but a very hard milker and so got rid of), actually quadrupled the cream and butter when the quantity of corn meal was increased three times, and an equivalent ration of palm nut meal was added, thus making the gain good four times (or a little more) as rich as it was previously. That is, the butter for the first week increased from 6 lbs. to 12 lbs., while the milk fell off one-half. As the cow gradually dried up, the milk became exceedingly rich, and showed 75 per cent. of cream in the gauge.

This certainly seems to indicate that the fat produced from the food, and deposited in the tissues, found its way to the milk glands as well, and in something like equivalent proportion so long as they were in an active condition. But I have made a good many other careful observations, one of which I here offer to your readers as testimony in this direction. The cow is one which I bred and reared, and am now milking for the fourth season, and is a pure Jersey. I have a record from the first week's churning, when at 20½ months

old, she produced 8½ lbs. of butter. The standard feed of all my cows has always been, for morning and night's feeding, 5 lbs. of out hay or corn fodder wetted and mixed with 5 lbs. of meal made of 300 lbs. of corn and 200 lbs. of fine wheat or rye bran (the latter preferably), ground together as fine as possible; and 5 lbs. of long hay at noon; any extra meal is given dry at this time. As a normal food, I have found none better, more easily and cheaply procured, and more safe and satisfactory in all respects. But I have at times varied this standard ration with every different kind of feed that has been on the market, and have carefully noted the results. Some of these for this particular cow I will give. The feeding was the same as the standard above given from Jan. 4 1880, when the calf was a week old, and the milk was set for cream. In January, the butter yield was 1.34 lbs. per day, February, 1.25, and March 1.145. On April 1st, the feed was changed to 6 lbs. of wheat middlings with the hay as usual, twice a day. The butter yield for April and May in this feeding was 0.95 and 0.84 lb. per day, the butter being very white and crumbly.

In June and July the ration was changed to 2 lbs. of wheat bran (fine bran, with considerable middlings, is the kind I use, sometimes called 'sharps') and 3 lbs. of palm-nut meal. This was at the time when the other cow above mentioned was fatted. The butter yield was 1.29 and 1.18 lbs. respectively. In August the food was changed to 2 lbs. of the bran with 2 lbs. of fine bolted corn meal and 2 lbs. of cottonseed meal. The yield for August was 1.22 lbs. daily; September, 1.45, and October, 1.28. The milk now began to fall off in quantity. Through 1881, the same difference in regard to the effects of cotton seed meal was shown, and the butter yield came up to 1.83 lbs. a day in July, three months after the second calving. The feed at this time was 4 lbs. of corn meal and 2 lbs. of cotton seed meal twice a day. I was expecting to get up to 2 lbs. a day when the cow had an attack of garget, and did not fully recover until October, when on 2 lbs. of the bran and 3 lbs. of fine yellow meal she gave 1.66 lbs. of butter daily. The next season I kept a more particular account, and weighed the milk carefully. The season lasted from May 9, 1882, to Dec. 6, 1883.

The record I think worthy of being given in full, as it is very well defined in periods:

Food Used.	Date.	Milk—lbs.	Butter—lbs.	Pounds Milk per pound of Butter	
2 lbs. bran, 3 lbs. corn meal, 1 lb. of cotton seed.	May 14-30....	592	32	18.5	
	June .....	926	51	18.0	
	July .....	918	53	17.1	
	August .....	930	61	15.2	
5 lbs. mixed meal, 2 5 bran, 3-5 corn	Sept. ....	902	48½	18.5	
	Oct. ....	840	40½	21.0	
	Nov. ....	897	42	21.1	
	Dec. ....	912	40½	20.25	
5 lbs. bukwheat middlings and bran.	1883.				
	Jan. ....	1009	24	42.0	
	Feb. ....	912	22	41.5	
	March .....	690	23	30.0	
	April .....	793	38½	20.6	
	May .....	807	41	19.7	
	June .....	671	34	19.7	
	5 lbs. of the standard meal.	July .....	494	26½	18.0
		August .....	482	28	17.2
		Sept. ....	430	24	18.0
		Oct. ....	281	20½	13.7
		Nov. ....	241	22	11.0
Dec (6 days),		38	3	12.7	

This record only corroborates many others which were made with less care, but are substantially correct. The very large difference caused by buckwheat bran—the cow fell off in flesh very much in those two months, and took two months more to fill up again—is almost exactly paralleled by glucose meal, which increased the milk of some other cows, but considerably reduced the quantity of butter; and also, but not to so great an extent, by new process linseed meal and by brewers' grains; all of these make more milk, but less cream.

I should like to hear from some other dairymen and butter makers in regard to this question, because it is one that is important as well as interesting. If we cannot get any richer milk by feeding richer food, we are throwing away money by buying and using cottonseed meal and corn meal; and the dairymen who think it necessary to supplement the succulent grass which makes milk, with grain feeds which make cream, are all wrong, and are making a big hole in their pockets. I must say I have little confidence in the conclusions of the German scientific people, and in the mass of food tables and various rations they give, and still less in this idea that the quality of the food has no effect upon the quantity of the butter, and should be very glad to have it shown that they are mistaken. But we must have facts, and very clear ones, to show this. (1)

HENRY STEWART.

## HOW I JUDGE.

### I.—*Shorthorns.*

BY MR. G. R. HEDLEY, ELSWICK GRANGE, NEWCASTLE

I TRUST that some system may be evolved from this discussion which will place the miscarriage of justice in the arena of public competition beyond uncertainty. I may at once remark that my syllabus, in its minute application, will only embrace Shorthorns, although I should be glad to hope that some of its tenets might be found acceptable with regard to all our domestic animals.

The first thing that arises for our consideration is the manner and the purpose of the judge in the ring, so as to get easiest and happiest through his work. Well, in the first place the true judge will never go over near to his subjects when they are first introduced to him. He will stand quite still at a given point and see them walk around him in an oblong ring—not too large. He will then quickly, and almost without an effort, draft the worst ones back to their stands. Then he will draw the others up in line and inspect closely. By this method I have never seen but what the largest class could in a few minutes be drafted down to four or five. If the number left are very much alike in shape, substance, and symmetry, an inspection of the age, quality, and action, will soon determine which are to have the first, second, and third honours. The correct judge will always bear in mind that a moderately sized animal, perfectly even, is to be preferred to a much larger one that is uneven, and that no excessive development of one or more parts will compensate for other parts that are dwarfed and meagre. He will also bear in mind that the first essential in a Shorthorn is a straight back from shoulder to tail. Then when he comes to the neck he will always know that that of the male requires to be thick at the base, should taper along the sides, and rise on the top a little towards the head. That of the female should be fine and long, and on a plane with the shoulders and the whole of the back. The sides of each animal should be as near the form of the sides of a barrel as possible, the ends of the barrel being the foremost parts of the shoulders and the hindmost

(1) I quite agree with Mr. Stewart in his opinion of the German rations: as to the value of the food tables, that is another thing. The above article is well worth attention.

A. R. J. F.

parts of the thighs. The legs should not be much crooked, and the head of the male should be strong and massive, covered on the front with long shaggy hair, that of the female tapering, clean, and fine. The eyes of both should be prominent, and those of the female very soft and placid. A good judge will always pay great deference to thickness of flesh, and there are cases when a little fault in complexion or outline may be overlooked for that great desirability. The skin in the best breeds will always be found to be soft and springy, moderately thick, and clad with long, bright, silky hair. If there is a doubt about the supremacy of quality, that with the finest hair and most pliable skin along the top of the loins should be placed first. Any dereliction from a gentle curvature in the horn is to be eschewed, and the fashionable colour in the horn is yellow and crimson in youth, and white in age. My proclivities go in the direction of strong horns, instead of small ones, as they mark constitution, and, as to the mouth, I contend it should always be rather large if it has to feed a capacious frame. I propose to approach another phase of the subject in a subsequent communication.

## II.—HEREFORDS.

BY MR. JOHN HILL, CHURCH STRETTON, SALOP.

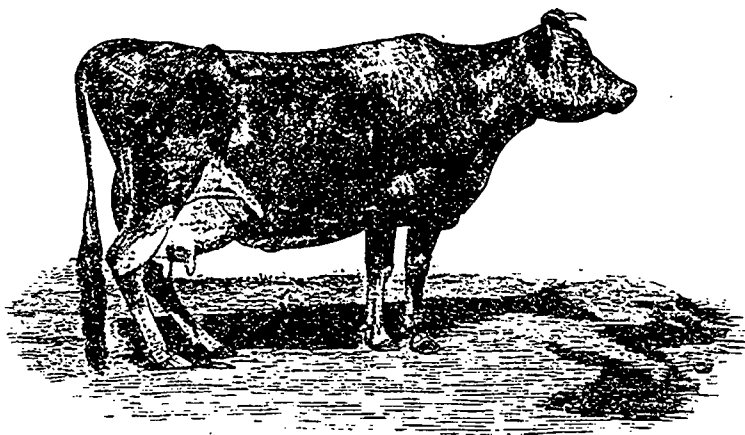
In judging Hereford cattle at breeding shows, in my opinion too little attention is frequently paid to the question of whether the animals brought into the ring are in a healthy breeding condition or not. I believe that the judges should first satisfy themselves on this point, especially in the older classes. If they have been fed abnormally fat, and cannot walk free and easily, and are bad upon their legs and feet, or even go cramped and crippled, I should certainly vote for their rejection at once. When judging a bull, I should look for good masculine character, and a pronounced style and good carriage, that would intimate that he is likely to stamp his own form on his get. A bull without these characteristics is sure not to be a good and impressive sire.

The head should be well set on—not carried too low and stuck on like a pig's, as some are. It should not be narrow or too long, but wide between the eyes, which should be full and prominent, yet mild, showing a quiet disposition and aptitude to fatten. I like a good wide muzzle, and clear nose. Usually a good body follows a good head. I would never give a prize to a bull with an effeminate weak head if I could find another in the class at all passable, and falling such, I would withhold the prize. The crest should be well developed, and have a good white mane. I do not fancy any Herefords without some white on their shoulders, although of course, its absence is no great point against an animal; and I dislike a bull with narrow crops, and think this a very bad fault; for Herefords are most emphatically a beef breed, and narrow chins are most objectionable where beef is wanted; on the other hand, the narrow chine is a special attribute of the deep milking sorts—for example, the Jerseys. A young bull having good crops, wide between the top of shoulder-blades, and having a good for-flank, will, even if he is not quite filled up behind the shoulder, nearly always "come" in that place as he matures, so that it should not be thought a very great fault if he is slightly deficient there. A good back is a point that should carry a great deal of weight with the judges; a bad-backed one should be put on one side, as most of the best cuts of beef worth most per pound come from that part. I think there is a difference between a low loin and a weak loin; the former may be well covered and packed with flesh, and is not such a fault as one that is bare and lean. If an animal has rather prominent hips and is high on the crup, the loin often looks lower than it really is; as also, when the ribs are especially well sprung the hollow behind the shoulder looks more than it really is. These points should be

well tested before awarding the order of merit. Long full hind-quarter, and well developed wide thighs, well let down to the hocks, should score many points, and narrow thighs should be always considered one of the gravest faults. Perhaps I should have mentioned before that I consider quality counterbalances a multitude of other faults, and I should always reject an animal that did not handle well, as, failing in this, they can never feed. Good hair, and plenty of it, is also a great desideratum. Of course, at the summer shows many animals have cast their coats, but there is always some evidence of what their winter coats are, which a practised eye can tell at once. I like a beast that stands over plenty of ground, and with his legs well outside him, the belly line as close to the ground as possible, without being "tubby." A big bony animal is certainly to be avoided, but a little size as well as quality must be an advantage to all concerned, for "when you have done weighing you have done selling."

In the case of cows and heifers, it is difficult to ignore the fact that they are in a breeding condition, when they have calves by their side, even though they may be grossly overfed; but still there should be a limit, and I think it an objec-

nothing but the style of "old plug" Mr. Beatty speaks of, and still as proof of the value of a thorough bred cross even into the *coll blooded old plugs*, the result was some very nice colts, good at any work and the best of travellers. I give you some of the prices obtained. Black gelding, 4 years \$140; Brown g., 5 yrs. \$140.; Che-nut horse, 4 yrs. \$300.; Br. g., 5 yrs. \$250.; Bay g., 5 yrs. \$200.; Bay g., 4 yrs. \$200.; Gray filly, 4 yrs. \$150.; Br. g., 6 yrs. \$300.; Bay filly, 5 yrs. \$120.; Ch. filly, 6 yrs. \$175.; making an average on 10 foals of \$197.50. Considering that horses of the above ages (except heavy ones) sell here on an average for about \$120, you will see that the above prices were good. The *habitants* opened their eyes (if they have any) too late, the thoroughbred sire is gone: disgusted with only 44 mares in four seasons, and 20 of those my own, I sold him. The great objections to the horse "o'est un cheval anglais! Il a les pattes trop fines! ils font toujours des chevaux rétives!" The latter all in the breaking, as "Canadian Breeder" truly says. I can bear witness to what you say about saw-dust as bedding, having used it for several years when straw was scarce. It has not a single drawback, except for the grooms, who find it dusty for the horses.



IMPORTED JERSEY COW ST CLEMENTAISE.

tion to an animal being shown as a breeder, if it is in a fit state to be shown immediately afterwards at a fat stock show. I like a clean cut delicate head, with the same features that I mentioned above for bulls, but with nice feminine character instead of the bull's masculine one. A "gay" head need not be objected to, provided the horns are not cocked up and turn back ("up-turned" horns are very different from "cock" horns). A bull-like coarse head is the worst kind, to my mind, as it gives no style and smartness to the animal. I am not fond of the very dark reds, as I believe those of a lighter color (not too pale) feed quicker, and are usually of better quality. Beauty of form and symmetry should be always considered by the judges as two strong points in the favour of the animals competing. *English Ag. Gazette.*

St. Hilaire Feb. 2, 1885.

My dear Sir,—I read with great satisfaction the article in your paper, taken from "The Canadian Breeder," which quite coincides with my views about horse breeding, and I have been for some years endeavouring to instil the idea into the *habitants* about here, both by theory and practice, but I am sorry to say with little avail. Though some of them have opened their eyes lately at the results of the practice part, that is, the several sales of the progeny of a thoroughbred stallion I had. The said stallion, brought from Kentucky, stood for mares four seasons at a mere nominal figure, he served

As to the heating, anything in the shape of bedding will heat if a fool leaves it long enough.

Mr. Barnard might have that article from "The Canadian Breeder" translated into the French number with advantage. You seem by your writings to be getting quite acquainted with the good farming and breeding of the natives.

Yours truly,

ARCHIE CAMPBELL.

A. R. JENNER FUST. Esq. }  
Sorel.

RAM SALES.

HAMPSHIRE DOWNS.—The sale of the first portion of renowned Fonthill flock—viz., the rams and lambs—took place at Berwick Farm on Wednesday July 30th. The business commenced with the sale of the *ram lambs*, which realised from 6 gs. to 96 gs. each, Mr. R. F. Moore, Littlecott, purchasing at the splendid figures of 96 gs. and 54 gs.; Mr. W. Wood, Warnford Park, Hants, at 80 gs., 30 gs., and 26 gs.; Mr. H. Lambert, Babraham, Cambs., at 76 gs.; Mr. T. C. Saunders, Watercombe, at 67 gs.; Mr. J. C. Sargent, Amesbury, at 56 gs.; Mr. Perry-Keene, Sussex, at 50 gs. and 15 gs.; Mr. G. W. Homer, Athelhampton, at 43 gs.; Mr. Campbell, Oxfordshire, at 31 gs.; Mr. Fryer, Essex, at 36 gs.;

Mr. James Lawrence, for Mr. East, Longstock, at 27 gs. and 26 gs.; Mr. Garnier, M. P., Wickham, Hants, at 26 gs.; Mr. Lloyd, Croydon, at 37 gs.; Mr. H. Spackman, Bath, at 32 gs. The average of 106 lambs sold was no less than £17 0s. 6d. The sale finished with nine shearlings, which made from 6 gs. to 46 gs. each, Mr. Homer buying at 46 gs. and 28 gs.; Mr. Flower, Chilmark, at 37 gs. and 15 gs.; Mr. Louch at 12 gs., &c; the average of the nine being £19 6s. 2d.—M. James Read of Homington held his annual sale on Monday, the 28th. ult. The sale commenced briskly, with 11 ram lambs that were to let for the season, the prices given being very encouraging as well as complimentary to Mr. Read. Three of these ram lambs were let for the coming season at 60 gs. each, and one at 50 gs., the lot averaging 41½ gs., within a fraction. The following are the prices in aggregate, and the individual averages:—Eleven ram lambs, let for season, 456 gs.; average, 41½ gs. Ninety ram lambs, sold out-and-out, 906½ gs.; average, 10½ gs. Average price of 101 ram lambs, £14 3s. 8d. Thirteen shearling rams, sold, 87½ gs.; average, 6½ gs.—One hundred and fifty draft ewes, sold, £504 10s.; average £3 7s. 10½d. The ewes were a fine flock, and in good breeding condition; and though the average for the ram lambs was very good, the ewes and the shearling rams went for prices which faithfully reflected the current depression in prices for sheep. (1)

The ram lambs would be about eight months old. The dispersion of Mr. Morrison's wonderful flock will be a great benefit to the nation at large. I am dying to see the Guelph importation of Hampshires.

A. R. J. F.

#### How to Save the British Farmer.

Mr. Frewen, in his eager earnestness to open-up a market in England for store cattle bred in Wyoming, has made two statements which decidedly are not "in concatenation accordingly." When interviewed by the representative of *The Pall Mall Gazette*, who naturally is only too ready to help the English farmer on his new way to salvation, he makes this statement:—"Our mission in the universe is to produce the skeletons or frames, which it is for your farmers to fill up. Our climate is too cold to enable us to fatten with advantage." The reports of Mr. Frewen's speech, when the deputation waited on Lord Carlisle, make Mr. Frewen say, "In Chicago they were killing from 6,000 to 8,000 cattle per day. . . . The graziers were anxious to get away from the thralldom of Chicago. Every one of the million cattle slaughtered at Chicago last year was killed about nine sovereigns under its value: and this was taken out of the pockets of the graziers." If Wyoming can only make cattle fit for the English grazier to finish, how is it that it succeeds in feeding so many cattle fat enough for the Chicago butcher and good enough, too, to lose £9 per head? A. R. J. F.

#### Questions About Fertilizers, Etc.

S. P. M. of Newfane, Vt., writes as follows: "As I am not much of a farmer, I write for information. I can obtain fine ground bone at Brattleboro, twelve miles from here, for about four cents per pound. Is that too much by the barrel? If so, where can I buy cheaper by the barrel, and is that what you call raw bone? Somewhere you say, *use enough*, when mixed with three times the quantity of un-

(1) Mutton is a 4c a pound cheaper, in the London market, than it was a twelve months ago!

A. R. J. F.

leached hard-wood ashes, to be equal to the same quantity of barn manure to the acre. Please tell me the number of cart-loads of manure to be used per acre. Perhaps I ought to describe the land. The soil is called a good loam, having a good firm turf when in grass, with hard-pan sub-soil. The piece I wish to manure was plowed a year ago last spring after being well manured. Afterwards I harrowed and planted to potatoes, putting some phosphate and ashes in the hill. Last spring it was again manured, then plowed and harrowed and planted to corn, putting phosphate and ashes in the hill. I wish to plow this fall, manure, harrow and sow with timothy or herds-grass (which I understand to be the same), then bush it in, and in the spring before the snow leaves sow on some clover-seed, doing nothing more to it. I expect to put the bone and ashes in barrels and wet three weeks as you have directed. When taken out mix with dry ashes or plaster and sow broadcast. As we have no machine for sowing, must it be sown by the hand like grain? You say, I think, the aforesaid combination is good for top-dressing grass-land, orchards, gardens, etc. Please answer and oblige."

REPLY BY AGRICULTURAL EDITOR.—The price named for ground bone (four cents) is exorbitant. A fair price for a first-rate article at Brattleboro would be from \$40 to \$45 per ton. It can be had in Boston or Springfield at about \$35 by the carload. This is "raw bone," that is, bones ground just as they are naturally, though in some cases the grease is partially extracted, which is a benefit. We do not advise three times as much ashes as bone except for potatoes on light soils. Two bushels of ashes to one of bone is quite enough for the soil described. If ashes is used as a dryer, half a bushel should be reserved from each two bushels for that purpose. But plaster is preferable. It should be sown evenly by hand, if no machine is used. Gloves should be worn, to prevent the ashes making the hands sore.

For common farm crops six hundred pounds of the above mixture is sufficient to the acre, and will sustain three or four successive crops of grain and grass. We refer our correspondent to Mr. Kendall's experience in this and preceding issues of this paper. A water-tight hardpan subsoil near the surface is not favorable to any sort of manure, or crop, until tile-drained, but we assume that is not the character of the land referred to. The plan given by S. P. M. for fall seeding is all right. We do not advise the use of any chemical fertilizers on *old soil*, never having had satisfactory results from them when so applied, but on new seedings of grass they are excellent to give it a strong start. All such fertilizers should be covered to get the best results, but harrowing well does this sufficiently. The dressing of bone and ashes named above is about equivalent to twenty or twenty-five cart-loads of average stable manure, and equally durable. For garden purposes much heavier dressings are used, up to a ton per acre, equal to seventy or eighty loads of manure. Dr. HOSKINS.

#### Questions and Answers.

1. Where can I get any seed of dwarf pease?
2. I want some lettuce-seed of a good sort, early and with good, firm hearts. I am told the best is the "Boston:" please direct me.
3. I have 80 hens to winter. Must I keep several coops with them? If so, should they all run with the hens or not?
4. What is the cure for a disease which has invaded my poultry-yard for the last two years: the tongue dries up. The

attack comes on anew every fifteen or twenty days, and affects the birds equally in winter and in summer?

5. I am advised to keep only young hens of 4 or 5 years old. how can I recognize them?

6. I hear of a coop for fattening fowls: how is it made, and what are the dimensions.

ANSWERS.—1. "Bliss's American Wonder" is the best dwarf pea in existence. I sowed a peck last year—April 27th—in the very poorest sand, and gathered them on the 24th June. In a garden, they may be set a foot apart as to the rows, but in the rows the space should be sown very thickly. Evans, 93 McGill Street, furnishes me with all my seed: out of the peck mentioned above, there were not five pease untrue to sort.

2. *Boston curled*, is evidently the kind of lettuce you speak of. In England, except for forcing, the only lettuce used for salads is one or other of the *Cos* sort; the best of which *Sutton's self-closing*, and even this is all the better for being tied up for ten days. It is useless to attempt to grow lettuce unless the land is as rich as it can be made—lots of water and liquid manure. Ask Mr. Barnard, D. A., about my lettuces, if you see him!

3. Eighty hens, for the production of eggs only, will do with the companionship of one cock amongst them. If you mean to breed fowls for the table, one cock will be required for six hens; the strength of the young ones will pay for the father's food. This is the rule of our Surrey farmers who supply the London market with the fine poultry only seen at the best tables. I have paid as much as \$4.00 a couple for them to take down to "The Derby."

3. The disease in question is evidently the *pip*: the cure is said to be, a few drops of *ipeacuanhu wine*, two or three times a day; but all diseases of poultry arise from bad management. People persist, in spite of remonstrance, in keeping a large stock year after year in the same place and running over the same confined space, until the very air itself stinks of them, and then wonder at their birds not being healthy! In winter, poultry must necessarily occupy the warmest part of the stable, but in summer, their runs should be changed as often as possible. We have, in England small hen-houses, to hold a dozen hens and a couple of cocks, which are moved about from place to place. With regard to medical treatment applied to the diseases of poultry, the nostrums and mode of treatment adopted and recommended by books on the subject are a farrago of nonsense and absurdity. If shelter, warmth, food, and cleanliness, will not preserve them in health, but little reliance can be placed upon medicine. Fowls ought always to be in fair condition, except of course after moulting, and the moment any of them show signs of ill health, their ticks should be winged.

5. No hens should be kept after two years old. The pullets that lay this spring—hatch of 184—should rear a brood in 1886 and then be cooked. Simmer them in a *ban-marie* for three hours, and then roast them till brown, with copious basting. They are not bad, if well done, but they must not boil.

6. Any small coop, provided the dung can drop from it easily, will do for fattening fowls. The French coop is by no means new, as I saw it in use in South-Wales (at Wenae Castle) fifty years ago! Mr. Chapais gives the measurement as follows (v. French Journal for Jan. 1885, p. 14): The coop is to be 9½ inches wide, 13½ high, and 20½ deep. The bottom is made of round bars an inch wide and an inch apart, so that the droppings fall easily through; the front is made of a plank in which a hole is made large enough to allow the hen to pass its head and neck through without difficulty. One side should slide up and down to admit the bird. Fattening mixture: 2-lbs. barley meal 1 lb oatmeal, ½ lb. fat, ¼ lb.

coarse sugar or molasses. The birds should be kept dry, clean, dark, and warm. Trough outside the coop divided in two for food and drink. A box of ashes or earth under each coop to catch the droppings.

A. R. J. F.

THE SALE OF HEREFORDS AT STOCKTONBURY.—Considerable surprise has been caused in Herefordshire by announcements that the renowned Hereford bull Lord Wilton and thirteen heifers, and a bull calf of which that animal is sire, are to be again sold by auction by the former vendor, as the bills say, "in consequence of their not having been paid for by Mr. Henry Vaughan, their purchaser at the recent Stocktonbury sale." Lord Wilton was sold in the autumn to Mr. Vaughan (of the firm of Orr, Vaughan, and Co., U. S. A.) for 3800 gs., Mr. Rankin, M. P., for Leominster, being the next highest bidder at 3750 gs. The heifers also fetched fancy prices. Much regret was expressed that the bull had been allowed to be bought for America. Why the animals have not been taken away is not made public. Resold last month for £1,050!

### THE MODEL COW.

*One Satisfactory Breed.*

EDS. COUNTRY GENTLEMAN—The "general purpose" cow, so long sought by those who have done the least to improve the native stock with which nobody is quite satisfied, is not here or elsewhere. Perfection in animal structure, such as will produce the highest results in converting food into beef, is antagonistic to the best results in turning food into milk, cream and butter. Hence, the more perfect the beef animal, the less the milk. This is an age of strong competition; no one shop can succeed in turning out work which a half-dozen can do cheaper and better. The cow that is the most successful as a beef-maker cannot well compete as a milk and butter producer. The hope of a general purpose cow which will combine in one animal all the capabilities of these specialists may as well be dismissed.

The model cow, however, is already in the field. She may be found in the Shorthorn, Hereford and Polled Angus for beef: the Holland and Ayrshire for milk and cheese; and in the Guernsey and Jersey for rich milk, cream and butter. Good butter-makers undoubtedly exist among Short Horns Now and then a profitable beef animal may be found among the Holland or Ayrshire cattle, or any of the breeds. Even the natives do as well. The objection to the "common cow" is that she is inferior, as a rule, for any of the purposes for which a cow is wanted. Her ancestors are mixed, and as she breeds like herself or like some of her ancestors, the result is too uncertain; she must be bred up, or discarded. No capitalist who has invested in a western ranche will send to it a herd of Jerseys, Guernseys, Ayrshires, or even perhaps Holland cattle, with a view to make beef, his chief product. Shorthorn, Hereford and Polled Angus bulls are superseding all others on the western plains. The men engaged in beef-making on a large scale are very discriminating in their choice of machinery. The greatest amount of beef in the fewest years is what they seek. The cost and quantity of food necessary to make a pound of beef is an element that will more largely enter into their calculations whenever they are compelled to raise or pay for the food which their animals consume. Then, they may aid in deciding which of the beef bulls has a decided advantage, if either has it. One fat steer will not decide which is the superior as a breed.

Of the dairy breeds, the Guernsey should command more ge-



neral attention. The dairy interest of this country is of vast proportions. It is stated that from 12 to 15,000,000 cows are in use to supply the demand for milk and its products, and that there is invested in the dairies of the country over \$2,000,000,000, an amount nearly double the capital invested in banking and other commercial industries. The men employed number about 700,000, and the feed consumed runs into hundreds of millions of tons. It is evident that there is room for all the good cows of any breed. A farmer or breeder may be so situated that he may choose either of the improved dairy breeds with so much profit that he will not miss the greater profit which would have resulted had he chosen one of the others. In general, when feed is abundant and cheap, and large results in milk and cheese are desired, the Holstein is the model cow. The Ayr-hire will be preferred by others who occupy smaller farms, or in locations where land is high in value and feed less plentiful. For rich milk and butter the Guernsey has no superior. She, more nearly than any of the others, combines the merits of all the dairy breeds. I believe her the model cow for the farmer, the creamery, and the milk dairymen whose farms are close to large towns and cities, and who seek that class of customers who will always pay the highest price for the best article.

She is a large animal, a good feeder, thrives under good treatment, and will endure exposure to severe climatic changes as well as any breed. She possesses the good qualities that have made the Jerseys famous, and others peculiar to herself, which especially recommend the breed to the farmers who keep small dairies or large, with a purpose to make the products of their dairies pay for the cost of the animals and their keep. No other breed shows a higher percentage of butter-fat in their milk. Having been bred for generations with the purpose of producing richness, the Guernsey has inherited very great power to transmit this quality. Bred upon an island, and protected by laws excluding all admixture of foreign blood, she is in truth, as well as in name, pure-bred.

The milk, cream and butter of the Guernsey is self-colored in a high degree. Experienced dairymen who have a life-acquaintance with other cattle, on seeing these products for the first time, often question their purity. The ownership of one good Guernsey cow will remove all doubts.

The Guernsey has the true form of a dairy cow; large and wide in the hindquarters, tapering toward the shoulders, with a long, slender neck, and a head sometimes a little coarse, but rarely ugly. Her teats are, usually, large, and so is her udder when full of milk, as it generally is when she is well fed. Her mild eyes, beaming with intelligence, and surrounded by a deep orange yellow border, soon captivates her attendants and owner. She is a persistent milker and gives a very uniform flow, nearly up to calving.

Guernsey calves are large and the surplus males can be readily and profitably turned into veal. The limited number of Guernsey cattle on the island has been a great hindrance to their rapid multiplication in the United States. There are only about 5,000 in all. England has for long periods drawn on the surplus to enrich the milk of her dairies, and now that they have established a herd book, will take more of them for breeding herds. The United States has about 3,000 and will soon exceed the island in numbers. Many of the best are yet on the island, and farmers who desire to anticipate enhanced prices, by increasing popularity, will make no mistake in bringing over the best whenever they are unable to make selections from American breeders. TELEPHONE. Philadelphia, Dec. 26. (1)

(1) No farmer possessing a grain of common sense would dream of keeping Jerseys if he could get Guernseys. Speculators may do otherwise

A. R. J. F.

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