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## The Field.

### Mistakes in Wheat Growing.

Most farmers aspire to raise wheat. It is the great staple crop of the country. There is sure to be a market for it. A man feels prouder over a good yield of wheat than he does over any other farm product, without it be a fat Short-horn steer, of mammoth size, concerning which he can say that he both bred and fed it. But while most farmers have an ambition to grow wheat, only here and there one really knowshow to do it; and there is perhaps nocropgrown in the country, which so often disappoints the hopes of the husbandman. In the majority of cases, this is the result of mistakes which may be corrected and avoided.

A very common mistake is that of supposing that any sort of land will grow wheat. There are adaptations of soil which ought to be carefully studied, so that each variety may be devoted to such purposes as best suit it. While most farm products have a faculty of accommodating themselves to circumstances, and will grow after a fashion, anywhere, it will pay to make everything as favorable as possible to their best development. In selecting a piece of ground for wheat, the two extremes of light sand and stiff clay should be avoided, and a good strong loam chosen. A clay loam is better than a sandy loam. Providence has given us abundance of the very best wheat-land in the world, but there are soils not so well adapted for it, whereon other products should be cultivated. Why fight nature when it is easier and better to act in harmony with her provisions and laws?

Another and most grievous mistake is attempting to grow wheat on poor land, land that has been exhausted by hard cropping. To grow this grain to the best advantage, even a suitable soil requires to be in a state of fertility. There should be abundant stores of both mineral and organic plant-food in it, and that too in an elaborated state, readily available for use. The soil should be mellow and well-pulverized, even the manures that are applied being reduced to the greatest possible fineness. This is best secured by letting it follow a root crop. In a well managed rotation, the place of wheat is next after roots. Nothing so completely mellows land, and so fines down manure, as thorough culture of a root crop. In this way, too, the land is cleaned of weeds, an important pre requisite for wheat growing. The root crop is to be heavily manured. Both turnips and wheat will show the good effects of it. So also will the succeeding yield of grass, for wheat is an excellent plant for seeding down with, and as it should be preceded by roots, it should be followed by grass. Wheat is an exhaustive crop, the most so of any crop grown on the farm, and it is the height of folly to sow it on poor land. A large proportion of

the disappointments connected with wheat culture may be traced to this cause.

Inasufficient preparation of the soil is a very common mistake in wheat growing. To obtain the best results, wheat ground should be well drained. It will not flourish on wet land. If there is stagnant water about the roots, the tissues of the plant become soft and watery, and though there may a great show of straw, there will be but a small yield of grain. If tile-draining cannot be accomplished, the next best thing is to loosen the subsoil with a subsoil plough. Many farmers hardly know the name or use of this implement—the more's the pity. The subsoil plough follows in the furrow made by the common plough, not making a second furrow, but loosening and tearing up the hard-pan, so that it will be light and open, admitting air, and giving free passage to moisture, in exhalation upwards, and in drainage downwards. When land is summer-fallowed for wheat, every effort should be made by repeated use of the harrow or cultivator, to destroy weeds, and to keep the soil mellow and friable. It should be ploughed in May to the depth of about eight inches, and the subsoil plough run down six or eight inches deeper. During the summer, an occasional harrowing or cultivating should be resorted to as a means of eradicating weeds. Then just before the time for sowing, the land should be re-ploughed with both common and subsoil ploughs. Let those who think this "overdoing it," fairly try the experiment of thorough cultivation and see whether the results do not prove that it pays.

It is a mistake in wheat culture to bury the fertilizing material deeply in the ground. We have known great pains taken to do this, and the consequence has been sad disappointment. The wheat plant inclines to spread out its roots horizontally near the surface of the ground, and that is where it should find a supply of nutriment ready for use. If the food of the young plant is deeply buried, its roots must alter their natural course and strike downward instead of spreading abroad near the surface. This is no doubt one of the chief causes of winter killing. The roots are torn and broken by the alternate processes of freezing and thawing. When the roots of the growing grain spread out horizontally near the surface, the expansion and contraction caused by freezing and thawing, affect the whole plant, heaving it bodily and letting it settle altogether, whereas when the roots are obliged to strike down deeply in search of nutriment, the changes of weather are felt only by that portion of the plant which is near the surface. The lower portion of the plant remaining firmly imbedded in the ground, when the top soil undergoes upheaval, the obvious result is destruction to part of the roots and the consequent weakening of the plant. It is well known that the best crops of wheat are grown on new land. The trees have just been chopped down, burnt, and the

ashes distributed over the surface of the ground. In addition to this fertilizing material, there is the leaf-mould which contains an accumulation of choice plant food. It is impossible to plough the ground because it is full of green tough roots of trees. Hence the seed is "dragged in," i. e., harrowed with an imperfect surface scratching. The roots of the wheat plant can follow their natural inclination under such circumstances, and spread out close to the surface of the soil which is richly stored with the best possible food. Have we not here plain proof that in order to successful wheat culture our fertilizers must be distributed at or near the surface of the soil? This is no argument for shallow ploughing. Stir the soil deeply, but let its treasures of plant food be near the top.

Broad-cast sowing is a mistake made by many. Drill-sowing is more economical, saving seed by its more uniform distribution, and lessening the liability of the young plants to winter-kill. There is a better and more even distribution of light and heat, and freer circulation of air,—important considerations in connection with the best welfare of the crop. It is not the least of the advantages of drill-sowing, that a little concentrated manure may be applied in the drill, the influence of which will be felt in hastening forward and strengthening the young plants.

It is a mistake in wheat culture to sow inferior seed. Indeed this is very foolish in regard to any and every crop. Like begets like. Weakness and disease are propagated in the plant world, very much as they are transmitted from parent to child in the world of human beings. The greatest pains should be taken to procure the choicest seed that can possibly be had. It will pay the farmer who depends on his own growing of seed, to cull out the best portions of a field, when there is perceptible difference, and devote them to this important use. Indeed it is a wise policy to select the earliest and finest heads, and from these grow seed. It is also well to obtain a change of seed from time to time, as successive sowing in the same soil and climate, seems to induce more or less degeneracy. The farmer should never grudge a little extra outlay in the purchase of choice seed. Such outlay is pretty certain to be well rewarded.

We have not enumerated all the mistakes that are made in wheat culture, but these will suffice for the present article, and others can be taken up hereafter.

WHEAT AND OATS MIXED.—The *Western Farmer* says.—The plan of sowing some oats with spring wheat has been practised to a considerable extent in some parts of Wisconsin, and probably more this spring than ever before. James Gillis, Cooksville, Wis., informs us that in his vicinity but little wheat was sown alone, most farmers sowing from a fourth to a third of a bushel of oats per acre with the wheat. The attacks of the chinch bugs are thought to be prevented to a good degree by this method. There is little difficulty in separating the wheat from the oats.

**Sowing Mixed Grains.**

Jonathan Talcott, Rome, N. Y., writes to the *Journal of the Farm* as follows:—

Having had some experience in sowing mixed grains, I will say in regard to experiments tried by me, that the sowing of spring grains for feed to be used on the farm for stock feeding purposes, has proved fully equal, if not superior, to those crops that were kept separate, but for market, such mixed grains would not, as a rule, be as valuable as if each variety were sown by itself. I have known some good farmers who made it their usual practice to sow oats and peas quite extensively for a field crop for home feeding to stock, also rye and oats and barley with oats, all which crops are deteriorated for the market when grown together, as on our dairy farms in Central New York there is not usually as much grain raised as is fed to the stock. All such, I think, would be benefited by the sowing of their spring grains mixed, but they still should sow an area large enough for such grain clean, else in case of a wish to sow clean seed of one variety, they would be under the necessity of purchasing their seed of some one who kept his grains pure and unmixed. In raising corn, many of our best farmers say they prefer to mix eight, 10 and 12 rowed varieties of the same color together, thereby increasing the average per acre by from five to ten bushels. I confess that has been, and still is my practice, and I think with good results, and in the case of corn when all of one color, no objection is made by the purchaser. Sometimes when the colors are mixed the price will be a little less for the mixed grain.

In regard to potatoes, too much care cannot be taken to have each variety kept separate, especially for all that are to be marketed, as mixed lots never sell so well as those that are kept pure.

While on this subject of mixed grain I must not close till I give my emphatic dissent to all this sowing of mixed grains for the food of the human family. Go where you will, you see but few fields of wheat of the winter varieties that are not badly mixed with rye and chess, and the spring varieties with rye, oats and barley. I am satisfied more is lost by this way of mixing seed than enough to pay for pure, clean seed every year in the United States, and all of which might be saved to the tillers of the soil, if each one determined to sow pure, clean seed, and if, in consequence of such determination not more than one-half the usual area were sown by each farmer. In this case, I speak from personal knowledge, having sown mixed seed of wheat, cockle, chess and rye, and as a matter of course, I harvested mixed grain for the crop, when wheat only was wanted. I am satisfied, that in a field of ten acres, grown some years since, I lost more than enough to pay for clean seed twice over. Since then I have resolved to sow only wheat where I wished to harvest that crop, and it has worked to a charm with me, and I don't doubt the same course would do so with all those who sow clean seed on clean, well-prepared soil; and very frequently such a crop can be sold for an extra price for seed, but if not, it will always bring a few more cents per bushel for milling than the mixed article. Also a farmer feels much better when he can carry a first-rate, clean sample of wheat to market, than he would do if it was pretty well mixed with chess, cockle and rye, as too many of our farmers are wont to do.

**English Farming in America.**

T. Whitaker, in the *New England Farmer*, says: I am trying to farm after the English pattern. I am feeding my cows highly, in order to have good manure, and am manuring highly, in order to have productive soil. I have found that it is much better to seed down with grass in the fall than in the spring. Last fall I had about an acre and a half seeded down, and flat turnips sown at the same time, after taking from one part a crop of oat fodder, and from one part early potatoes. I obtained over two hundred bushels of turnips, and the grass is now looking splendidly. I seeded last spring with barley, and cut it for fodder. The clover looks well, but the past dry season affected my spring seeding very much; when the clover was spent the herdsgrass and red top did not show so well as they ought to have done.

I find, too, that it is much better to restrict the range of milch cows, and cut their feed, than let them ramble miles in quest of food, although I am not entirely committed to the strict system of mowing. I have a hill-side which is too steep to cultivate. My cows have the range of this hill-side, probably four acres. On the balance I raise rye for early spring feeding; next my oats come in, and

after them fodder corn, then my second crop of grass, and it is August before my cows get much grass, except what they get on the hill-side.

I find that oats or barley, cut green and cured the same as hay, make excellent fodder in winter. My cows eat it as well as the best hay, and give as much milk from it.

The question has been asked how to farm without manure. As well ask a weaver how to make cloth without warp and weft. I look upon my cows as machinery for the manufacture of milk and manure. I expect my pigs to manufacture pork and manure; and my land, also, is a machine for manufacturing manure into potatoes, corn, peas, beans, oats, barley and grass; all of which articles are again resolved into manure, by the stock on the place. To increase the amount of manure I keep more animals on the place than I produce feed for, so I levy upon the West for shorts, linseed meal and corn meal; I also levy on my neighbors for some English hay for feed, though I hope another year to produce nearly all I want. I also purchase meadow hay for bedding. Thus I obtain from my neighbors the elements of fertility for making my land more productive. Who is the wisest,—they for selling the best parts of their farm, or I for buying,—time alone can determine. The returns of neither one year nor two can settle the question; nothing less than a series of years can completely set at rest such a question. But we can determine so much, however, that I am getting at the rate of a ton of hay to the acre where three years ago I obtained nothing but moss and hardhack; and in those three years I have obtained large crops of fodder corn, rye and oats.

**What the Farmer Must Know.**

The farmer, like the business man, must know what he is doing; he must have some pretty decided ideas of what he is going to accomplish—in fact, he must calculate it beforehand.

He must know his soil—that of each lot, not only the top, but the sub-soil.

He must also know what grain and grass are adapted to each.

He must know when is the best time to work them, when they need summer plowing.

He must know the condition in which the ground must be when ploughed, so that it be not too wet nor too dry.

He must know that some grains require earlier sowing than others, and what these grains are.

He must know how to put them in.

He must know that it will pay to have machinery to help him as well as muscle.

He must know about stock and manures and the cultivation of trees and small fruits and many other things; in a word, he must know what experienced, observing farmers know, to be sure of success. Then he will not guess—but will act on such facts.—*Illust. Home.*

**Satisfactory Figures.**

The *Journal of the Farm* for July gives the following figures concerning a farm of 321 acres, near Doylestown, Bucks Co., Pa.:

RECEIPTS.	
From May	\$1,250 57
Wheat	494 78
Barley	615 50
Rye	124 10
Potatoes	1,023 75
Dairy of 29 cows	2,427 50
Chickens	345 57
Turkey	43 60
Ducks	60 40
Eggs	107 10
	\$9,554 17
EXPENSES.	
Manures	\$1,113 00
Ten tons meal	292 00
Four tons wheat bran	140 00
Four hundred bushels better's grains	88 60
Wages	1,257 96
Blacksmith work	237 40
Whitewash work	121 75
Blacksmith bills	77 00
	\$3,207 11
Receipts over expenses	\$6,347 06
Receipts per acre	19 77

The farm kept 15 horses in addition to the dairy of 30 cows. But what is a little singular, there are no hog products in these figures.

Reckoning the farm and implements as worth \$200 per acre, the profit over and above the interest on \$64,200, and \$3,207 11 for expenses (as above) was \$1,833 06, certainly a very encouraging result.

**Why Farming Pays no Better.**

R. B. Shepard, Mount Vernon, Ind., gives his brother farmers the following advice. He writes; "One of the reasons why farming pays no better with the majority is simply this. We raise too few kinds of grain and grass, and not enough kinds of stock. The farmer that raises nothing but corn and hogs can never expect to make as much money as the farmer that devotes his time to the care of horses, cattle, sheep, hogs, and poultry, and to the raising of wheat, corn, clover, potatoes, and fruit. The last-mentioned farmer has work for himself and his team every day in the month and every month in the year. He has always something that will bring a fair and remunerative price, for if some of his crops are low others will be high. Last year corn was selling in south-western Indiana for 30 cents, while wheat was worth from 1 00 to \$1 80 per bushel. The farmer that held both was a lucky man. If one did not more than pay the cost of production, the others did. Not so with the hog and hominy farmers, who had nothing to sell but corn at thirty cents a bushel, which would not more than pay the cost of production. Let us glance at the figures and see where the most money is made, in mixed or corn farming. Let us suppose that a man is going to plant eighty acres of corn. The breaking up of the land, planting, cultivating, gathering, and hauling to market will cost, in round numbers, \$360, and counting the interest on the money invested in the land, and the taxes, the corn farmer will be behind in dollars and cents. Not so with the farmer who raises all kinds of farm produce. He is cultivating twenty acres of wheat, twenty acres of corn, twenty of timothy grass, and a few of root crops, such as beets, potatoes, and turnips, in an acre of orchard, and five acres of other kinds of farm crops, with all kinds of live stock in proportion. His wheat will yield fifteen bushels per acre, in all 300 bushels, which, at 1 50 per bushel, makes \$450 for wheat; corn, fifty bushels per acre, 1,000 bushels, at thirty cents, makes \$300; timothy two tons per acre, forty tons in all, at 20 per ton, \$800; the rest of the farm will yield an average of 200 bushels per acre, making 1,000 bushels at 1 50 per bushel, equal to \$150; the orchard ought to bring in about \$200 a year at least; the other farm crops (speak of wild fruit) will probably add \$100 at the end of the year. He has the net profit of \$2,050 against \$1,200 of the 'hog and hominy farmer's' business his grain, &c., he will have butter and eggs, and a fat hog to sell during the summer months. We should follow mixed farming for reasons besides the money-making. We all know that planting corn year after year on the same land is injurious; it wears the land out, and in few years it is unfit for cultivation. But if we look to our interests and follow mixed husbandry, and study a rotation of crops that is best suited for our land, and keep it up, we will have land in better condition, to leave to our children than it was left to us. Another way to make farming pay better is to drain more, dig ditches, to let off all stagnant water, and in some cases your crops will be about doubled. The last reason I will give is this: We as farmers read too little, and consequently we are behind the times. I do not mean all farmers but the majority of them are. The majority farm the same way that their fathers and grandfathers did in old times when agriculture was not making as much progress as now, and was comparatively in its infancy. Farmers should study in the winter months, and lay plans for the Spring and Summer. Read papers of sterling merit, and select such books as Allen's *New American Farm Book*, Todd's *Young Farmer's Manual*, Harris on the Pig, Stonehenge on the Horse, Allen's *American Cattle*, Randall's *Sheep Husbandry*, and Sander's *Domestic Poultry*, and then they will have a library in itself that they can read rainy days and winter nights. This not only profits them, but will afford many hours of pleasure in learning more about their profession, raising and elevating it. This, with the majority of farmers, is now ranking as the lowest down calling that man has ever known. But it should not be so; it should rank with that of any other profession."—*N. Y. Times.*

Weeds to be killed with little labor, should be destroyed before they come up. Go over the bare surface with a steel rake, and the operation will not only promote the growth of the crop by breaking the crust, but will kill any weed just ready to thrust its head above the surface of the ground, with one-twentieth of the labor required to cut them afterward with the hoe.

Wheat in Great Britain.

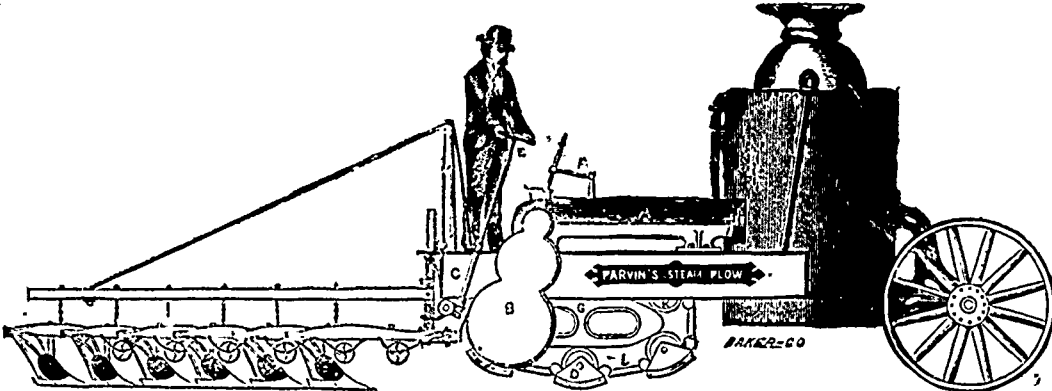
Mr. H. Kains Jackson, in a long report in the English papers on the coming harvest, gives some significant figures and remarks. He says that the seven years' average import of wheat into the United Kingdom was about 8,000,000 quarters, following on the preceding seven years' average of 5,000,000 quarters (A quarter is eight bushels.) Yet in 1872-3 we have had to jump from those 8,000,000 average up to 12,000,000, as the bulk required, and this leap has been accomplished without, so to speak, raising value a single penny. The average price of the seven years ending in 1867 was 5s. 10d., and our the week's average for English wheat in London is only 56s 8d., from which level quotations have fluctuated but slightly since last harvest. Moreover, judging from the past three years, viz., 1870, when we imported of wheat and flour 3,000,000 quarters; 1871, when it was 9,750,000 quarters; and 1872, when it was 10,500,000 quarters, the country annually needs, as a matter of course, about 10,000,000 quarters to supply its normal wants. These figures also lead to the conclusion that even this large requirement may steadily increase with our population, without value advancing to any appreciable extent. This year's large purchases of England have, it may be said, swept clear the barn-stock of farmers and the warehouses of corn merchants, but so also did equally the smaller purchases of 1867-8, when an early harvest came upon stocks so low that a late harvest in 1868 would have been a calamity. In many respects the coming harvest in Europe and America decidedly promises fully an ordinary yield. Algerian wheat, already in Paris, is heralding new harvest supplies, which Egypt, Spain, and Italy will now be making available. In southern Russia, in Germany, in Hungary, the Danubian provinces, and in California a good yield is anticipated, while nearer home, in France, a yield equal at least to French wants is now promised — *N. Y. Times.*

Prof. Johnson recommends for fertilizing purposes to mix one bushel of salt and two bushels of dry lime under cover, and allow the mixture to decompose gradually, thus forming chemical union. For this purpose the mixture should be made nine weeks before use, or still better, two or three months, the heap being turned over occasionally. This salt and lime mixture, when applied at the rate of 20 or 30 bushels per acre, forms an excellent top-dressing for many crops. It acts powerfully on the vegetable matter of soils; 50 bushels applied to turnips have produced as large a crop as barn-yard manure. It is destructive to grubs and insects in the soil. Like salt it attracts moisture from the air, and is useful against drought. Its decomposing power is remarkable, and if three or four bushels of it are mixed with a load of muck, the latter will be thus thoroughly powdered. — *Boston Cultivator.*

Agricultural Implements.

Parvin's Steam Motor.

We are in receipt of the accompanying displayed cuts of a so-called "Steam Motor," lately invented and patented by P. C. Parvin, of Farmington, Ill., who has obligingly sent them to us for publication. At first sight it is somewhat difficult for a casual observer to understand the peculiarities of this most novel mode of producing great traction force. By carefully studying the annexed illustrations it will be observed that the propelling parts of the Motor are somewhat



similar to large, flat feet or boards, which extend the entire width of the locomotive. There are large wheels working within these feet, and the entire weight of the back part of the machine is thus brought to bear on these feet or boards. Into these large wheels very much smaller ones are geared, and these latter are attached to the engine shaft, so arranged that they can be driven backwards or forwards, or thrown out of gear altogether when from any cause the engine is required to work and the carriage remains stationary, and without moving these feet. When employed in full work, as the engine revolves, the surface of these feet being very large, prevents the possibility of slipping, thus ensuring the movement of the machine forward. There is also another great advantage in the large surface so exposed to the tractive force, which effectually prevents the Motor sinking in soft places.

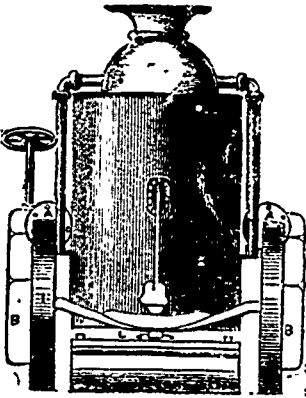
One of our staff has seen and inspected this machine, and feels satisfied to give the first step. It has at last been made in the right direction, and that we shall soon see the farm locomotive travelling over our Canadian fields drawing half a dozen ploughs after it, and the whole arrangement divested of the mass of ropes, anchors, pulleys and engines (one at each end), now generally used in ploughing by steam. Mr. Parvin well deserves the thanks of the agricultural community, and we trust he will find his invention a success, and be handsomely remunerated for all his outlay. It is claimed for the "Steam Motor" that it will "break prairie" as well as do ordinary ploughing, and that the cost of so doing will not exceed one-half that of ordinary horse or ox-power now in use. We hope some enterprising manufacturer will place himself in communication with the present proprietor and endeavor to supply our farmers with a Canadian manufactured article. Some observations on the general subject of steam-ploughing and the use of the locomotive on the farm, will be found in our Editorial Department.

We have submitted the accompanying cuts and description to our mechanical engineer, who has been requested to comment thereon, and as he has given some years' attention to the subject of steam ploughing, and been in communication with most of the

leading manufacturers in England, we have no doubt his views, as expressed in another column, will meet with the attention the subject deserves. Whilst doing all in our power to promote the publicity of this important invention, we must at the same time remind Mr. Parvin that his implement is thus exposed to severe criticism, and that our Canadian manufacturers will do all that active hands and energetic minds can do, to improve on it or construct a better. Fair competition is no doubt all he deserves, and such he certainly will have under the existing patent law. In all such cases, the best machine ever made is capable of great improvements, and the high price of labor, and cost of maintaining horse-powers (with hay worth from 20 to 25 dollars a ton,) will be a most active spur to our Canadians to compete with American manufacturers. We have always thought that the *sine qua non* in steam cultivation would be an implement that will draw our ploughs like horses; be at once powerful and light, and furnish a price within the reach of the ordinary farmer.

Smith & Dixon's Harvester Guards.

These guards or fingers, for mowing and reaping machines, are made by stamping in dies from steel plates of uniform thickness, thus making them half hollow, so that great strength is obtained by the use of a small weight of metal. We have given these guards a trial this season in cutting many acres of grass, and find them work well. Attached to one of the newly constructed Cayuga Chief mowers, they moved through dense and wet grass in a very satisfactory manner, and never saw better work in a meadow. The edges of the guards cannot become rounded down by wearing as in those made solid, but must continue to constitute a pair of close-cutting shears with the knives. These guards are manufactured by Smith & Dixon, of Port Byron, N. Y., and, judging from one season's trial, we think they must supersede the solid guards. — *Country Gentleman.*



To Clean a Rusty Plough.

Take a quart of water and pour slowly into half a pint of sulphuric acid. The mixture will become quite warm from chemical action, and this is the reason why the acid should be poured slowly into the water rather than the water into the acid, and let it remain on the iron until it evaporates. Then wash it again. The object is to give the acid time to dissolve the rust. Then wash with water and you will see where the worst spots are. Apply some more acid and rub on those spots with a brick. The acid and the scouring will remove most of the rust. Then wash the mold-board thoroughly with water to remove all the acid, and rub it dry. Brush it over with petroleum or other oil and let it be till spring. — *Ex.*

## Grasses and Forage Crops.

### Sowed Corn for Winter Forage.

A writer in *The Ohio Farmer* says—My experiments with it have resulted in the following conclusions: First, that one acre of corn sown in drills three feet apart is worth more than two acres planted to winter cattle on. The first I sowed in June, four years ago, from the 10th to 20th; stock did well on it fed in the bundle. I have raised some every year since, but sowed late, and cattle would not fatten fast enough to suit me. Last year I sowed in May, about the 20th, three pecks per acre; cultivated twice, and cut and stooked, then cut with the Empire Feed-Cutter, and fed from one to two bushels per head, and am receiving gratifying results from it now.

In sowing early the corn care I well, in fact a good part would have done to crib, therefore, having more heart or substance, and by cutting it from one to one and a-half inches long, cattle eat every part clean. It is not so much work to cut the fodder as it would be to husk corn; the stalks are sweeter and softer than when handled as they are when it is husked. The corn should, when cured, be piled as close as possible, and heated, to keep it from drying too much.

One acre fed the first of this winter twenty-five head three weeks. Since then I have had but not enough to feed once a day, one bushel per head, then straw in the yard at noon, and hay at night. My cattle are doing well, in fact are growing.

### Fall Treatment of Meadows.

The grass crop is the most important interest of agriculture. As represented by figures in census reports and estimates of crops, its real value is far from being properly appreciated. While the value of the hay cut and carried into barns each year in the United States amounts to over \$100,000,000, taking a price of \$15 a ton only as the basis, a larger amount of grass than this is consumed as pasturage. Thus the value of our grass products would exceed that of the corn crop or any other single product of agriculture. Grass, therefore, is "King." Nevertheless there is no crop so carelessly managed. A certain amount of care is taken to gather and protect the hay each year, but as soon as that is saved the meadows are neglected, as if their condition was an element not to be considered in the calculations for a future supply. Thus, when a more than usually hard winter or a very dry spring occurs, the grass crop falls short, and inconvenience and loss, if not distress, are the consequences. It is the boast of the enthusiastic farmer that he may be independent of the seasons. However near to, or distant from, the truth he may be as to grain crops, he is near the truth as to grass. This may be made as nearly a certain crop as we may call any subluxary thing certain. Just now is a critical time with meadows, and where do we see any special pains taken to carry them over it safely? Certainly in but few instances; but in them, constant success shows that the careful farmer may in fact, so far as this crop is concerned, feel little anxiety as to what weather he may experience. The hay having been harvested, the plant, whether clover or grass, is checked very seriously by the cutting. No time can be better chosen to kill a plant than to cut it when in full flower. Just at this time, too, the fervid heats of our summer's sun bear with injurious effect upon the wounded plants, and a large portion of them die out and disappear. We have no sod. A true sod, in which the plants grow so thickly that no intervening space or soil is to be seen, is a thing unknown to us. Even beneath the clouded, weeping skies of Britain, the production of such a sod is a matter of time and the greatest care. An English proverb has it that it takes 300 years to make a sod. Yet we talk of our sod. It is a thing not indigenous here. The course we take is destructive to all our hopes of one. We cut the grass, and when, in spite of drouth and heat, a weak growth once more appears, we turn in our stock and pasture it to the roots again. Then the frosts of winter come, by which it is torn out by the roots, and perishes for want of protection. The soil uncovered to fierce winds is denuded of

every particle of dead matter that would rot and fertilize a new growth, and when spring comes again, the sickly growth is pastured until the last moment, when it is allowed to grow to be mown once more. It is simply marvellous that on half our farms a hay crop can be gathered. That our average hay crop is at least one ton per acre, is a standing proof that our soil is not impoverished, as we are made to believe. It may be that our poverty lies such that this state of things must continue. But if "the destruction of the poor is their poverty," it would seem that this condition should be remedied as soon as possible. The evil is radical. It consists in making the wrong crop our standard one, our "paved" crop. This should be grass, and not corn. And to bring this about, we must first learn how greatly we depend on our grass; that without it, it is in vain we try to increase our flocks and herds, and preserve our fields in fruitfulness. Then we may take the simplest means to preserve our meadows from deterioration. When the crop is removed, we must protect them from the sun's heat and the drouth by a dressing of manure, or we must stimulate them into active growth by dressings of active fertilizers, so that they will soon be self-protective. Then, if pastured at all, it must be with judgment and moderation, and the winter's snows must fall upon a thick coat of faded grass which will shelter the roots, and dying down, furnish food for a new growth. If we consider that the growth of roots bears a proportion to the size of the plant, we shall aim to keep a vigorous growth above ground by which the root may draw what it needs from the abundant sources of the atmosphere. In short, we must give much more consideration to the condition of our meadows if we would keep up, not to speak of increasing, the fertility of our farms.—*N. Y. Times*

### Materials for Top-Dressing.

Before the fall rains come on, every farmer should have a large compost heap ready for top-dressing his mowing lots. We are satisfied, from many years' experience, that a top-dressing in the early Autumn is worth twice as much as one in the Spring, and that this dressing need not be of the richest materials. The meadows, especially if the aftermath has been cut or grazed, need something to keep them in good heart, give vigor to the roots of the grasses, and protect them from the rigors of winter. Almost any covering that will answer the purpose of a mulch—that is, will keep the soil from being lute-bound, and enable it to absorb the rich gases that descend in the fall rains and the winter snows—will be good material for top-dressing. All strawberry culturists know the good effects which result from covering their vines with straw, leaves, or even hemlock boughs. When uncovered in the spring the vines look fresh and vigorous, start off with a luxuriant growth, and the deep green color of the leaves continues through the season. No observing cultivator supposes that these effects are due solely to the protection from cold which the covering has furnished. The straw, or boughs, or whatever the covering has been, has kept the soil porous and enabled it to absorb fertility from that great reservoir of fertilizing material—the atmosphere.

In like manner, if we spread a light covering of straw, or leaves, or fine branches from trees, or woolsen waste, or any porous material—we care not much what—over a meadow, the grass will grow luxuriantly under it, showing that fertility comes from the air in part, at least. We have often kicked over a lump of muck as we have crossed a top-dressed field, and have been surprised to find how large and vigorous were the young stalks of grass which were growing under it. The raw muck could not furnish such food for plants, but it kept the ground moist and porous, and was itself a good absorbent of the gases of the air. Of course we should prefer some richer material for top-dressing than straw or muck, but we are confident that the mulching effects of covering land with some porous material have been undervalued.

In forming a compost, therefore, for top-dressing meadows, we dilute the manure greatly with sods, muck, leaf mold, or even good loam—anything, in fact, which is a good absorbent and will make the

surface of the meadow more porous, and it is surprising how little leaven of pure manure will set a large pile of compost in fermentation, and reduce the whole to that putrescent state in which it best subserves the purpose of top dressing. Animal manure, having, in its passage through the viscera, received from the effete matter with which it has come in contact a tendency to rapid decay, imparts this tendency to the muck, or sods in the compost heap, just as one rotten apple in a barrel taints the whole. Whether this effect is due to the seeds of decay which the manure contains, and which propagate themselves as do the seeds of yeast, or whether it is the result of what chemists call catalysis or contact, we will not stop to enquire, but that such is the consequence, all observing compost-makers must have noticed. Hence the great benefit of the compost heap, as it enables us to make a little manure go a great way in furnishing top-dressing. A load of night soil can be composted with half a dozen loads of dry muck, or leaf mold, and the whole spread on forty rods of meadow will do as much execution as the night-soil alone would on ten rods.

In forming the compost heap it is not absolutely essential that we should have any manure to start the pile in fermentation. A dead horse or other animal, or some refuse pieces of skin from a tannery, or sizing from a paper mill, or the refuse of a glue factory, or the scrapings of a woolen-mill, will have the same effect on the compost as the manure. All animal matter, with the exception of wool, hair, and horns, decays rapidly during the summer, and imparts the same tendency to every organized substance with which it may come in contact. Even woolsen waste, which alone would decompose slowly, is generally so saturated with oil, a highly carbonaceous and consequently inflammable substance, that it heats up the compost heap admirably. A spontaneous combustion goes on in the pile, which speedily reduces the whole into a good condition for top-dressing. It a few bushels of wood-ashes, say five or six, can be added to a cord of compost, made of muck and wool waste, or sizing, or some such matter full of ammonia, we desire no better top-dressing.

If neither animal manure, nor dead animal matter of any kind, fish and flesh included, can be obtained to set the compost heap in fermentation and furnish it with ammonia, then use the soap-suds from the laundry and the slops from the kitchen and the chamber. There are few things that will put a compost heap on the road to putrefaction better than the refuse water of the laundry. This contains, besides soap, the filth of clothes, which have received the exhalations from the pores of the skin, and is really such a choice animal matter. Poured around the house, as it too often is, it produces one of the worst smells imaginable; put upon cucumber or grape-vines it gives a most luxuriant growth, but the best place for this water, and, indeed, all the slops of the house, is the compost heap, where all the rich gases generated by its fermentation will be retained, and will aid in decomposing much other organic matter. We sometimes hear persons living in villages or the suburbs of cities, and keeping no stock, complain that they have no resource for fertilizers. They have a garden spot, but no means to enrich it. We always pity the ignorance of such complainants. Having an abundance of fertilizing material, they know it not. Every family of half a dozen persons must furnish from the chambers, the kitchen, and laundry, to say nothing of the water-closet, sufficient material, if it is only rightly managed, to dress richly an acre of land. If the light-soil is included, two acres can be kept in good heart by every such family, even if there is not a cow or chicken on the premises.

Chip dirt, well rotted muck and sods, and in some cases good loam, without any pepping of barn-yard manure or special fertilizers of any sort, will make a good top-dressing for an old meadow. These serve to lighten the soil, and are good absorbents of fertilizing material from the air, though they may not contain much in themselves. We have been surprised to notice the results of spreading alluvial soil, taken from the bank of a river, upon a clay loam. The alluvial seemed mostly composed of sand, but it gave the clay loam new life. There were doubtless salts of various kinds in the alluvial, which gave the sand additional virtue, but the compact clay was as much improved by the sand as bread is improved by butter.

We have also seen most beneficial results from top-dressing mucky land—that is, land abounding in vegetable matter—with pure sand taken directly from the pit to the meadow. The quantity and quality of the herbage were greatly improved by this cheap and most simple of all top dressings.

The resources of fertility are abundant, if we only have a eye to discover them; and we often overlook them at home, and search at a distance for the more costly and less efficient.—*Alexander Hyde in N. Y. Times.*

# The Dairy.

EDITOR—L. B. ARNOLD, of ROCHESTER, N. Y., SECRETARY  
THE AMERICAN DAIRYMEN'S ASSOCIATION.

## Rennet.

The dried stomach of the calf, the pig, and the lamb may be included in the definition of the term "rennet," these being the only stomachs here used in cheese-making that we are aware of. The stomach of the calf is the main dependence for curdling milk for cheese, but that of the pig has on times been substituted with good effect. The stomach of the lamb makes a very fine flavored cheese, but is weak compared with the others, and is little used.

The mode of preparing and preserving the stomach, and age of the animal from which it is taken, exert a marked influence on the characteristics of the cheese made with it. The rennet of the young calf makes a soft rich cheese, that of the full grown animal makes a hard and dry one, and between these extremes the effect varies according to the age of the animal. The stomach of the calf four days old makes a better cheese than when four weeks old, and very much softer than when four months old. That age is best at which it will make the most cheese, and that is when one week old or less. It is often supposed that the rennet of a calf four to six weeks old, because it is larger, will curdle more milk than a young one, but experience has proved otherwise. With the pig it is different. The stomach of the pig is good from three to six months old, or even a year. The stomach of the lamb appears to be effected the same as the calf. Our experiments with lamb's rennet have not been extensive enough to determine its efficacy at all ages, but in those made, the younger the animal the better the effect. The stomach of the calf loses its power and quality very rapidly as soon as it begins to eat solid food, and that of the lamb probably does the same.

Calves' and pigs' Rennets affect cheese quite differently; that of the pig makes the ruder cheese, and is better adapted to milk that is skimmed or partly skimmed. It acts more efficiently in breaking down the tough structure of the curd than calf's rennet. Mixed together they make an excellent preparation for cheese in creameries.

The stomachs only of healthy animals should be used. Like the virus in vaccination, they carry into cheese the influence of every disease the animal may be afflicted with.

To produce the best effect, the calf should be about five days old. It should be kept, at any rate, till its system has undergone a complete renovation, and come entirely under the influence of the good milk, and its excretions assume a natural and healthy appearance. This can be determined by the action of the bowels.

It is best to let it suck two good meals a day, but it should not be glutted. The last meal is better to be rather light and then let it go 18 or 20 hours without food before slaughtering. It is a good plan to let the calf have a light supper and then kill about noon the next day. It is best to go just long enough to get the stomach about empty and free from curd. Some keep them 24, 36, and even 48 hours without food, but this is both cruel and injurious. The stomach becomes affected and injures the quality of the rennet. Some increase may be made in the strength by such starvation, but what is gained in strength is lost in quality. A calf should not be kept so long hungry as to get up any irritation or fever. When slaughtered it should be well bled, and the rennet taken out as cleanly as possible and tanned inside out and carefully cleaned. The contents of the stomach, if there are any, whether solid or liquid should be thrown away, for both give a bad flavor to cheese. The curd is better off here than the liquid contents, but this is inferior to the workings of the membrane, though some, whose tastes are not very acute, do not object to it. But where the best results are sought for, the curd had better not be used. The stomach being turned and emptied, if it

can be cleaned without rinsing, it will be better not to apply any water. But if it can't be cleaned without, rinse it very carefully. The strength is very easily wasted by washing or handling roughly. It will help you much about cleaning, to prevent the calf from eating anything dirty, or licking itself after a wet meal. The curd is best effected by drying. It can be done without the use of salt it will be all the better, and with a little pains it can be done. Tie the stomach tightly with a small cord; insert a tube in the small end and blow it full and tie the end outside of the stomach. The usual mode in this country is to do them. When this is done it may be tied over a small crooked limb, or over a low, and dried in it, and out. Then hung up where it will dry quickly. It must not, however, for the sake of drying rapidly, be put where it will get too warm. It should be kept below 120°, otherwise the strength will be injured.

After having been thoroughly dried, if the skins are occasionally moistened and then dried again, they will be made more pliable by soaking. It is a singular fact which is generally recognized by dairymen, but which has not been fully accounted for, that Rennets gain strength by the simple fact of drying. The oftener they are wet and dried the better, provided they are not allowed to get so wet as to drip. The green vells have only about half the strength of one that has been dried and kept a year. There is more or less of offensive smell about the fresh stomachs which injures the cheese if used when new, but which mostly disappears when dried.

The practice of packing the vells in strong brine, and keeping them that way till wanted for use. Though this is a favorite method with butchers and also a good many dairymen, it is not to be reckoned among the best ways of preserving the vells. That they will keep safely is not questioned. The objection is that they are little, if any, better than green Rennets when used. They make little or no improvement in the curd, for they undergo scarcely any change; and what is more, the "animal odor" which accompanies them in their fresh state is allowed no chance of escape. It becomes, as it were, crystallized in and only comes out when they are put to soak for use. Such Rennets are found to have but little strength and deteriorate the cheese. It is better to hang them up full of salt to dry.

### Preparing Rennets for Use.

Rennets may be soaked in either whey or water. If whey is used, it may be sweet when the weather is cool, as in spring and fall, but in hot weather it should be sour, and it should, before using, be boiled, skimmed and cooled. Very little salt will be needed with sour whey. When water is used, the liquor must be saturated with salt, if the weather is warm, to prevent tainting. Use one gallon of either whey or water for each vell. It is considered best, by most dairymen, to use sour whey, especially in hot weather. It has several advantages. First, it requires less salt, a circumstance which is of considerable importance. The material in rennet upon which its usefulness depends has a specific gravity about the same as milk. It floats on brine and sinks in water. By putting a little salt in whey which is lighter than milk, it will be equal about the right specific gravity to have the strength of the rennet suspended in the liquor, and thus keep evenly mixed. If water is used in the warm season it must be made so salt that the coagulating agent will float, and is therefore liable to be tipped off, leaving the remainder too weak, and always necessitating a thorough stirring before using.

In the second place, boiled sour whey with a little salt, is a better safeguard against taint than the strongest brine alone. Acid and taint are opposed to and counteract each other.

Third, when there is trouble from tainted milk, or when milk is liable to taint, acid is a valuable aid in curdling the milk. If the rennet is not soaked in sour whey, sour whey should always be kept on hand to counteract the inclination to taint whenever it occurs.

### Seasoning Rennet.

It is a good plan to flavor rennet while soaking with aromatic seasonings. They modify favorably the flavor of the cheese; they increase, to a moderate extent, the action of the rennet; and they are all antiseptic in their nature and help to preserve the rennet sweet. Any aromatic that will improve the flavor will be appropriate. Cloves and lemons are most frequently used. The cloves are tied in a cloth and put in whole, and the lemons are sliced thin and sliced put into the liquor with the vells. But this is not a good way to use the lemons. There is a bitter and unwholesome extract that soaks out of the rind of lemons which had much better be left out. Lemons produce a finer effect to cut them up and press out the juice, as is done for making lemonade, then soak-

ing a few minutes to take up all the acid, and then turn the acidulated water into the pickle with the Rennets.

### Rennet Jars.

Dairymen are now generally using 15 gallon jars to soak Rennets in, and there is nothing any better. If the stomachs are soaked in salt and water only, the stone jars are almost a *sine qua non*. It is almost impossible to prevent Rennets that are more or less tainted from finding their way into the steeping vessel, and when once a taint has made its impress upon the staves of a cask it is very difficult to eradicate it entirely, and if undertaken is seldom accomplished. The stone vessels can be purified and kept in use. But if sour whey, boiled and cleansed as directed, is used, and the salting done with Liver-pool salt, or something equally pure, then wooden vessels will answer. There is scarcely any danger in tainting the cask when sour whey is used, because a tendency to taint and even incipient tainting, will be destroyed by the acid in the whey. Before a wooden vessel is used for this purpose, it should be prepared the same as for keeping butter. The sap should be taken out of the staves by soaking in boiling hot brine, and it should stand long enough to saturate the pores of the wood well with salt. If this is not done the sap will gradually work out and affect the rennet.

### Selection of Rennets.

There is no absolute standard by which to measure the strength of a dried stomach. Size is not here the measure of power. The large stomach of the calf six weeks old, will not curdle so much milk as the less one from the calf six days old. But there are some indications which may be used in judging of the value of a rennet before it is used. The readiest means is smelling, though not a very agreeable one. The rennet has its own proper smell as much as anything else. When that smell is once learned it is a good guide in selecting. The sack which has any other than its natural odor should be rejected. The taint from decay, and that from disease can readily be distinguished by the use of the olfactories by a very little attention. Whatever odor a rennet may have will be carried with it into the cheese, and care should be taken that those having offensive odors be avoided. The appearance of a rennet will often be enough to condemn it. Those cured with salt should be white, or at least light colored. Those having a dark and reddish hue are usually diseased. They occasion huffing and bad flavor in cheese, and often spoil while soaking. Skins which have been well spread before drying are better than those not stretched. The greater exposure to the air improves both strength and flavor.

In purchasing, it is necessary for the dairyman to make the most judicious selection possible, remembering always, that the characteristics of his coagulating agent will be expanded in his cheese, either to improve or injure its quality. Much of the premature decay complained of in cheese is occasional by faulty Rennets.

### Uniform Strength

In the liquid rennet is always desirable to ensure uniform results in curdling. To secure this two or more jars or casks are necessary. Three are preferable. Soak one batch and have it ready to begin with. While this is being used, soak a second batch in another jar, which will be ready for use before the first is exhausted. The strength of the second mess is liable to be different from that of the first. To prevent any mishap on this account, begin using the second with the first, taking part of each till the strength is determined. A third mess will be soaking while these are being used, to be treated in the same way. Rubbing and stirring the skins while in the liquor will greatly facilitate the steeping and are necessary to the perfect extraction of all the strength.

Another advantage results from getting all the strength out of the skins before beginning to use the liquor. The first strength that soaks out of some Rennets makes a better coagulation than that which comes out last. It acts upon the cream more effectually, uniting it more firmly to the casein and occasions less waste. By using the liquor while steeping, the first strength is all dipped off, and the last strength is used alone with less advantage. By not beginning to use till the soaking is completed, the benefit of the first strength is carried through the whole mess. All Rennets do not show this peculiarity, but most of them do. It is a circumstance which we have never seen noticed, but one which we have made available for many years. The cause of this difference is susceptible of a reasonable explanation, but our article is already too long to attempt it here. This, and the nature of rennet, and how it is formed in the stomach, and how its strength may be increased, and other modes of preparing and using, must wait for some future occasion to appear.

Milk-pail Holder.

"An Old Subscriber" sends us a description of a milk-pail holder, which we have had drawn and engraved that it may be more plainly understood. It is a ring of heavy hoop-iron made large enough to receive the pail and hold it about one-third of the distance below the top. There is rivetted on each side of the hoop a curved piece of hoop-iron, large enough to fit easily upon the leg of the milker just above the knee. The holder is shown at Fig. 1 as it is put together. When in use it is slipped over the bottom of the pail, and enables the pail to rest on the milker's knees (fig. 2), so that it need not be placed upon the floor of the stable or yard, nor be held tightly between the knees, as is sometimes done, with very much inconvenience. By this little contrivance the milking is made much more cleanly and agreeable, and easy for the milker.—American Agriculturist.



Fig. 1.—MILK-PAIL HOLDER.

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FIG. 2.—HOLDER IN USE

floor of the stable or yard, nor be held tightly between the knees, as is sometimes done, with very much inconvenience. By this little contrivance the milking is made much more cleanly and agreeable, and easy for the milker.—American Agriculturist.

Dairy Farming in Canada.

Mr. Alexander Tweed's farm in West Hawkesbury, consists of 200 acres of land, of which 150 acres are under cultivation and 50 acres under wood. He has a fine brick house, covered with tiles, which he will occupy the ensuing season. He has two barns, under one of them is his cow-house, for twenty cows, well lighted and ventilated, and the manure is covered from the sun and rain. Mr. Tweed has an excellent cheese house—where an article is made that cannot be excelled in this country, now called brick for cheese making. Last season he made from 18 good cows of the country, crossed with a little of Ayrshire blood, the whole season, and one more cow during half the season, the quantity of cheese mentioned in the statement annexed. He sows corn broadcast to soil his cows, when the pasture gets hurt from drought, which keeps his cows tifty up to their spring's milk, and he thinks it increases its richness. During the summer he raised five calves and fed three pigs which weighed over 300 lbs each, and kept seven over the winter. This family, without any other assistance, made more than one thousand pounds of cheese, which sold in Ottawa for 11, 12 and 12 1/2 cents per pound, and any quantity could have been sold at the same rates. While making cheese, he made butter for a large family. One-seventh of the whole season, the milk was made into butter, being the milk of the Sabbath day, and fully two months of the season when cheese was not made. Mr. Tweed raised on his farm about 150 bushels of beans, 90 bushels of wheat, 140 bushels of oats and 1 tons, 1100 bushels of potatoes, and more than forty tons of hay; he had also a garden, which produced 45 bushels of onions, and plenty of other vegetable with cucumbers and melons.

PRODUCTS AND PROFITS OF THE DAIRY

Table with 2 columns: Product and Price. Items include: More than 6,000 lbs cheese, at \$12 (\$720 00); Milk for butter one-seventh of the time (100 00); About two monthly milk before and after the cheese-making season (50 00); Mazura from each cow, \$1 each (72 00); Five calves reared, \$8 each (40 00); Three pigs, 300 lbs each, one-half credited to the cows (\$51); Total (\$1,009 00).

Horticulture.

FRUIT.—D. W. BRADLE, CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND

THE ORCHARD.

Fruit in the County of Waterloo.

The fruit crop in this neighbourhood promises an abundant yield, almost every apple, pear and plum tree is loaded. So abundant was the cherry crop that in the market they were sold for 25¢; the patent-pail-fruit tree, and the present season's. The codlin moth does not appear to be quite so abundant as in the previous two years, which I think is attributable to the most cold weather, as circumstances I observed before. The curculion has been very abundant and has relieved the plum trees of their superfluous load to the benefit of the trees. In our St. Lawrence apple trees are rather badly infested with aphides. I see the other varieties of apples are more exempt, the Duchess of Oldenburg, particularly. The grape crop will be very fine if no very early frost makes its appearance. The grape vine by the way is to have left.

Ornithology.

There is at present in my garden an ornithological curiosity to be seen, namely, a small greenish yellow bird, known as the golden wren, (the scientific name I do not know) busily engaged in feeding a large grayish young bird, about the size of a young robin. Early in summer a pair of strange birds visited the nursery grounds, which I am of opinion are of the Cuckoo family, as they very much resembled that European bird in shape and manner of flying, the colour being darker. The cry or song was ho-ho-ho which it repeat 1 successively as does its European cousin. The young bird is probably a young cuckoo, and the American variety has the same habit of getting its young raised.

Peach or Plum Borer.

To prevent the borer from attacking plum or peach trees no application is more efficient than a strong solution of Water Aesop laid on with a broom to the stems in the month of June. The rains during the summer will blow it up a sufficient quantity about the joints of the tree with the ground to enter the insects from depositing its eggs.

This is my experience, and I also cured a Stevens' sheep pear tree which was completely covered with the bark borer by syringing with the same liquid.

Api Petit, or American Lady Apple.

This pretty little fruit is in season here to about February. Of the apples that grow in the desert, this is confessedly one of the most beautiful, and its tiny dimensions, with its increase than diminish its attractiveness. It is not its glossy, brilliant crimson alone that induces the eye to rest on it with pleasure, but it is the melting of this into ivory tints—sometimes as gradual as daybreak—sometimes with brighter abruptness, just as the ruddy cloud bounds the softened light of the setting sun. People cannot but be struck with the appearance of this brilliant fruit. This apple is said to be of very ancient origin, having been introduced into France somewhere from the East of Europe. This may probably be the original apple referred to in French pomological dictionaries under the name of *Api*, and described as a small delicate apple, white and red. It also bears the name of *Api Petite* and *Loiole*.

In flavor, the Lady Apple is less remarkable than for beauty. It is sufficiently sweet, with very little acid; pleasant, but devoid of any peculiar aroma.

It keeps well till February; but it is desirable that it should hang as long on the tree as the season will permit, or rather longer than is permitted for most apples. It is generally perfect, which renders it entirely fit to be placed with favor as an ornament to the table, for which use it is especially adapted. It is well adapted for Christmas decorations. Its growth is generally described as being in the fall, white, breaking into a fine yellow when not too ripe, with a mild, subacid flavor. We consider it worthy of cultivation.—*Prairie Press Express*.

Apricots.

W. C. Flagg after eight years of planting ten years with apricots, finds the Early Golden and Brada hardest and healthiest. The latter is rather smaller, and some days later than the other, and to our taste, not quite so good. Most have a fine flavored is the Moorpark, but it tends to blight, apparently with some kinds of fungus, and in wet weather to crack open and rot. It is like some of our white peaches.

In the *Prairie Press*, here is a list of apricots ripening in succession:

Table with 3 columns: Name, Description, Season. Includes: French, Early Golden, Brada, Great St. Jean, Moorpark, Muscat, Gros Borel, Albarose de St. Agamat, Gros Camarine, Vicari, Bourcatt, Royal, Reche, De Versailles, Barys.

This list covers two months, during one of which the peach is hardly a competitor, and suggests the possibility of covering the period from the latter end of June until the end of July with this delicious stone fruit.—With special culture, it seems to us that it can be made profitable.

Dr. Brecht recommends the growing of them as seedlings, because he finds the seedlings more vigorous and longer lived, and states that the Red Mission, Montague, and the Peach re-produce themselves from seed.

Low vs. High Fruit Trees.

An Illinois fruit grower, who has 12,000 apple and from 4,000 to 6,000 pear trees, finds that "those with low heads of the same varieties show at least two-thirds more fruit, as large or larger, and as high colored as those with high tops." To test the matter, he cut off in certain rows all the limbs from four to six feet from the ground, and in others encouraged the limbs to start close to the surface, and in the latter case neither thinned nor pruned, except occasionally to lop away a too large shoot in order to preserve a symmetrical appearance or an evenly balanced head, and the above is the result.—*Id.*

PLUM BLIGHT.—The *Harold Messenger* says a correspondent checked plum blight by digging down to roots of his trees and throwing a quantity of scrap iron, and covering all over.

SUMMER APPLES.—D. B. Wier says in the *Prairie Farmer* "Much of the success in marketing summer apples is in packing right, and recommends a small crate, 22 inches long, 16 inches wide and 8 inches deep, outside measure, holding one bushel and made such as peach crates. He says they should never be sent to market in a barrel, and we "guess" for once in his life Wier has "hit the nail on the head."

PEAR TREES AND OXIDE OF IRON.—The *Scientific American* says, the practice of mixing iron scraps, filings, or drilling chips from machine shops, in the soil about the roots of pear trees, is becoming general with some of our best fruit-growers. The health and productiveness of the trees are greatly promoted thereby. Pieces of iron hoops, old scythes, and other useless bits of iron, have long been used by the most successful growers.

ORCHARD PROFIT.—It was stated at a late meeting of the fruit growers of New York that an orchard of Baldwin apple trees, 140 in number, yielded last year 1,000 barrels. As the ground covered was about two acres, the net profits were \$800 an acre. This orchard had been planted 15 years, and the average yield during all this time was over \$50 a year. Another orchard which was planted thicker yielded an average for each year, from the time of planting of \$275. It was said, in conclusion, that apples can be grown at a profit of \$1 00 a barrel, and that more money can be made than with any other crop.

THE FLOWER GARDEN.

Horticultural and Landscape Gardening in England.

The first view of the British Islands, as seen from the deck of a steamship, in the English Channel, is strikingly beautiful and picturesque. The distant and green-clad hills of the county of Wicklow, Ireland, and the bold, abrupt, and in places precipitous landscape of Wales, divisioned out into fields by the neatly trimmed hedges, is a pleasant and enjoyable picture, coming suddenly upon you, after a ten days' voyage, during which time little or nothing is seen, but sea and sky, with an occasional spot of the ever-welcome *rhodé*, to break into the monotony; and lazy habits one falls into in crossing the Atlantic. But on approaching Liverpool through the Mersey, there follows a sad feeling of disappointment, with this muddy, sluggish stream flowing lazily along, as if without purpose, and confined on either side with tame and unvarying banks. One wonders that in a country with a world-wide fame for its cultivated tastes in embellishing its landscape, where gardening was taught and fostered, as one of the fine arts, as early as the sixteenth century, so little has been done to adorn and beautify the banks of the river leading to the great shipping port of the world. But this disappointment soon vanishes when leaving the outskirts of this, the centre of the shipping interest, for travel in whichever direction you may, the general appearance of the country is that of a well kept and highly cultivated garden, when compared with our own country, where fertile land is too plenty and too cheap to call for the same kind of close cropping. The total absence of the unsightly post and rail fences, and in their stead the thorn hedges, gives tone to the landscape, and adds much to the general appearance of the face of the country that grows on one the more they see of it.

Another feature, common in England, Ireland and Scotland, and one well worthy of imitation in our own country, is the tasteful manner in which many of the railroad companies keep the enclosed places on either side of the tracks. The spare ground is laid down to grass, which is mowed twice a year leaving a fine turf for hundreds of miles on a stretch. This, in connection with the depots built of stone, from handsome designs, and the walls of such buildings not unobtrusively hidden from sight by the luxuriant growth of ivy, and other climbing vines, with a tastefully laid out flower garden near by—and often I have seen the name of the station, from the car window, in growing flowers of brilliant colors.

The natural advantages of the mild and moist English climate, make it comparatively easy work for the English gardener to produce and keep up a succession of fine effects. Among the most noticeable in all well kept gardens, parks, and pleasure grounds, is the exquisite, fine character of the turf, looking in mid-summer, fresh, green, closely shaved, soft, velvety and elastic to the foot. One who has not seen a well tended English lawn, cannot conceive how much it adds to the touch of a country home. In all country places having any pretensions, the "ribbon" style of arranging flowers is quite common; and where the plants have been set with a view to the harmony of colors, this style proves a great success. Then follows the plan of massing colors. Beds cut out in graceful and artistic shapes, planted with a single variety of flower, or a bed of ornamental leaved plants. The geranium, golden feather (*Pyrethrum*), dwarf nasturtium, magnonette, lobelia, and celosia are often used for this purpose while in some of the best laid out places, long beds of dark blue-leaved beets were grown for ornamental purposes, and contiguous to other plants, one could hardly imagine they would harmonize and give such richness to the whole.

Window Gardening.

There is no doubt that the mass of the English people enjoy and cultivate flowers more generally than the Americans. This fact is demonstrated in the extent that "Window Gardening" is practised in and about every village, town and city. Among the poor, as well as the rich, are to be seen structures on the window sills, kept constantly filled with flowering and ornamental leaved plants through the whole season. In the more wealthy neighborhoods these window structures are elegant in the make and finish, and in places the whole front of a house would seem ablaze with bright colors, and charming views. Through the mechanics' and laborers' quarters there would be a less gorgeous display, but even in the most wretched hovels, where the poor are compelled to live, it was quite common to see, in a back alley, on the sill of a window, four or five stories up, a single plant of geranium, or a pot of magnonette, that had been carefully tended by its owner. The de-

mand is so large for this class of plants, that they are propagated by the million, and sold at low rates when compared with our prices for the same kind and quality of plants. Puschias, strong, stocky plants, for twelve cents apiece; geraniums, balsams, calceolarias, etc., etc., at from four to six cents, or one-sixth of what they would cost here. In London, propagators from the suburbs send thousands of these flowering plants, every morning, to Covent Garden market; from here they are distributed, by men, women and boys, to all parts of the city, each of whom has his own customers, and keeps them supplied with whatever kinds they may want, not only for window decorations, but also for garden culture.

Where there was such a demand for annuals, there must be some place where the seeds were grown in great quantity. A visit to the flower farm of Dunnett and Barle, at D. Ham, Essex county, soon solved this inquiry. Here I saw more than 200 acres, exclusively devoted to flower seeds; and at the time of my visit, the bulk of the past season's crop was in full blossom, presenting a display well worthy a trip across the Atlantic to see. This, however, is a mere skeleton of one branch of the commercial florist's business on the other side of the Atlantic.—*Cor. Home Journal.*

Button-hole Bouquets and Coat Flowers.

But few seem to understand that there is any difference between a button-hole bouquet and a coat flower; yet there is, and a very great difference too, the flower being, as the word signifies, a single bloom, whereas a bouquet means a number of flowers ar-



ranged according to taste. Many papers have appeared in different horticultural periodicals on the arrangement of cut flowers, and yet, with few exceptions, they have excluded button-hole bouquets, probably because, being small, people imagine that they must necessarily be easy to make. Just let them try, and I do not hesitate to say that they will find themselves much mistaken, as no combination of flowers requires to be put together with more taste, or to be more lightly done, than a properly made button-hole bouquet. Flowers selected for this purpose should always be good, particularly those for mounting singly, which should, in fact, be specimens of whatever kind is chosen. Ferns I always like to see in such bouquets, and also along with coat flowers, provided these are stove or greenhouse kinds; but hardy flowers I like best mounted with their own foliage alone. Nearly all flowers for bouquets of any sort should be wired; indeed, many could not be used for that purpose at all were they not mounted on wire, as, for example, the pups of white Hyacinth, mixed with a little Maiden hair, and many remarked that it was very light and elegant looking. That which took the first prize at the Royal Horticultural Society's Show at Birmingham last summer, was composed of a yellow Rose-bud, mounted with blue Forget-me-Not, a pup of Kalosonthes coccinea, and one of Bouvardia. I have seen one made of Lily of the Valley, a blush-colored Rose-bud, and the same shade of Hyacinth pups, with a little Fern worked through it, which was a very neat-looking little bouquet; another consisted of a spray of Lily of the Valley, a yellow Rose-bud, and a few pups of a rich purple Cineraria, which came out well against the deep color of the Marechal Niel bud. I could give descriptions of many others, but think that those which I have mentioned will suffice to show the best shape and style in which such bouquets should be made.—*A. H. in The Garden.*

Flowers for the Sick.

It would be selfish in us to cultivate flowers merely to adorn our own homes, or to gratify our own love of the beautiful. The flowers are generous, their fragrance is not pent up in themselves, but is wafted on every one who passes by our grounds, or enters our parlors; and we doubt not many wistful eyes admire the bright colorings and desire to hold some of them in their hands as their very own.

It is a sad thing to be sick and disabled from walking out. It is a great privation to be shut up in the house, a feeble, wasting invalid, when there is so much brightness out of doors, so much to fill the heart and eyes with joy and happiness. We that rise early and employ ourselves with daily cares and labors, can hardly sympathize with those who are unable to enjoy those privileges which we can really never appreciate until they are lost and gone beyond our recall. And in every community there are those who highly prize the "green things of the earth," and yet are not able to enjoy them, but are forced to struggle for life with pain and sickness, day and night. To such sufferers a fragrant bunch of flowers comes like a messenger of hope and comfort from the outer world—even a single rose bud or a bunch of pansies is fraught with a blessing, and such slight tokens of remembrance will brighten many a dark hour, and give a cheerful appearance to many a gloomy room. Far better than the pills and powders, sometimes, are the bright, sweet flowers of our gardens to those who are denied many comforts; and even when their illness is so severe that only the physician and nurse can enter their sick room, the lovely, fragrant flowers will remind our friends that we are mindful of their sufferings, and will do all in our power to alleviate them. Amid the dull array of phials of medicine, it is almost a blessed relief to see a few flowers, which can cheer the patient in his bitter pain; and if death is the only physician which can heal, the flowers will speak to the sufferer of brighter skies and purer airs, where no griefs nor graves are known; and sin and sorrow never enter. In the time of fruit, a luscious peach or pear, or a glowing bunch of grapes will be relished by the sick for their sake, and also for the giver's; for intense gratitude is often felt for kind remembrances, such little tokens of affection and interest.

Dear friends, let us bestow our abundance not only upon the sick and suffering, but also upon those who are denied such blessings.—*Country Gentleman.*

Celosia, or Cockscomb.

We have already commended the Cockscomb to the readers of the *Rural Home*, not only on account of its beauty while growing, but because, if cut before frost, it will retain its color in a dry vase all winter. Plants should be started in a hot-bed, to have them in bloom during the summer, and when all danger from frost is past, should be transplanted into a rather moist soil, if possible. We had specimens growing in muck last season, the blossoms of which would have measured nearly a foot in diameter. There are several colors, as crimson, rose, yellow, violet, scarlet, and sulphur. We prefer the deeper colors although a variety adds to the effect.

We mentioned favorably last summer, a new variety which we saw growing in the grounds of James Vick. The stalk leaves and flowers are all beautiful, and would form a brilliant bed in any garden or lawn. We copy Mr. Vick's description: "*Celosia Japonica, or New Japan Cockscomb.*—This is an entirely new variety of Cockscomb, received from Japan last year. It is far better and more brilliant than the old variety, a single plant being an object of great beauty, while a bed containing a dozen plants is not equalled for garden display by anything we are acquainted with. The branches, from the roots to the smallest leaf-vein are scarlet or crimson, while the colors are of the brightest description imaginable." *American Rural Home.*

A famous rose tree in the island of Ceylon is eighty feet in circumference and fifteen feet high.

—FLOWERS give a cheerful, pleasant appearance to a place, and have an undoubted tendency to promote contentment and happiness, especially among young people, who can hardly be expected to have a home without flowers.





**How to Test and Cook Mushrooms.**

Robt. Morris, Copeland, contributes to the February *Atlantic*, an article on "Edible Fungi," from which we take the following:

"The treatises on fungi give many methods of cooking, than to make them palatable, and most of the process are so complicated, and require so many a variety of condiments or spices, butter, etc., that a piece of sole leather so cooked would probably be very good. The simplest method is the best for real cooking, and is an easy way of testing whether any fungus which seems safe is fit to be worth eating. Peel off the outer skin, break out the stem, and set the cap top down on a hot stove. In the spot where the stem formerly stood put a little salt, and, if desired, a small bit of butter. Scatter some salt over the gills. When the butter or salt melts, the cooking is done; and as soon as it is cool enough the fungus should be eaten, carefully saving the juice. *Agaricus campestris* cooked in this way and eaten hot will make one wish that he was all mouth and palate, and that his mouth might never be in want of a "mushroom."

This is the simple Irish way of cooking the mushroom, and all its allies can be treated in that way. Some fungi which do not seem particularly delicious when thus cooked will, when slowly stewed with a little butter and flour dredged in, with salt and butter, make most delicious stewes.

The mushrooms, *Cortinarius*, *Marcianus*, *Boletus*, indeed all of the fungi named, will stew together, and form a dish that alone, or as an entrée, can not be surpassed in delicacy of flavor and gastronomic satisfaction.

In testing new fungi, one eats a little of the cap with salt to ascertain whether it tastes good, and whether it affects the fauces of the throat disagreeably; when a burning or stinging sensation accompanies or follows the swallowing act no more, but take a copious dose of common salt, which generally neutralizes the poison. Some species which are unpleasant or slightly injurious when raw, lose their harsh qualities in cooking; but as there are so many that are delicious, it is well to give up the doubtful kinds.

**Growing Tomatoes from Cuttings.**

Sometime since it occurred to me that tomatoes might be grown from cuttings of the bearing vine, in the fall, and wintered in greenhouses in a bearing condition. Accordingly, I made several cuttings and potted them in four inch pots, when well rooted, and have since continued them in a bearing condition. They are now in fruit. The object in view is to have early bearing plants for spring, by the time they can go out of doors, instead of waiting for seedlings to acquire sufficient age to produce fruit.

The experiment thus far is a success. The plants are strong and thrifty, and more stocky than when grown from seed. They are disposed to branch at the axil of each leaf and need pruning and cutting back. No plant roots easier from cuttings than the tomato.—*Western Rural*.

**LUNAR LIGHT UPON VEGETATION.**—Mons. P. Charbonnier, in a communication to the *Journal d'Agriculture Pratique*, states that lunar light exerts a material influence upon aquatic vegetation. This fact was first noticed from the increased growth of cryptogamic vegetation upon the sides of an aquarium. It was observed that during the time of full moon it was much more luxuriant than during the time of the new moon. This led to other observations with regard to it, and it was found that aquatic vegetation generally is affected in a similar manner.

The "Geographical Garden" is one of the latest novelties in Paris. The idea seems to be to inform the masses a little more definitely as to the whereabouts of Persia. A space of ground is laid out to represent the "five quarters of the world; each zone is separated by gravel-walks, and continents by hills. The geography of the globe can be learned in an afternoon, and a voyage around the world can be taken for one franc.

**THREE KINDS OF MEN.**—A clever author says there are three kinds of men in the world, "The wills the wheels, and the wheels." The first effect everything, the next oppose everything, and the last fail in everything. "I will" builds our railroads and steamboats; "I won't" don't believe in experiments and nonsense, while "I can't" grows weeds for wheat, and commonly ends his days in the court of bankruptcy.

**Entomological Department.**

**The Ant Lion.**

It was in April of 1872, while at Plymouth, Mass., with a party of friends in search of the Mayflower *Epigea repens*, that I was so fortunate as to capture a specimen of the larva of this insect. It was quite by accident that it came to my hands. A friend and myself were lounging by the roadside, for want of better employment thrusting our fingers into the light sand, when with a jerk and exclamation my friend withdrew his hand to find this larva clinging to a most determined nip to a finger, it immediately dropped to the ground, however, and so quickly buried itself backward as to almost escape us, but a moment's lively digging revealed it again, and I secured it in a pill box. On my arrival at home I provided a jar with a few inches of dry sand in the bottom, and placed the larva in it; it at once buried itself, and though I waited several hours, hoping to witness the commencement of its pitfall, there was no movement in that direction; there was now and then a slight stir of the sand, and once or twice the head was thrust above the surface, but quickly withdrawn at the slightest movement on my part. I grew tired of watching and retired for the night, returning in the morning to find a completed pit. It was in the form of an inverted cone, about one and one-half inches in diameter and three-quarters deep, and as smooth as sand could be made. At the first glance I discovered no sign of the builder, but a closer inspection revealed a pair of mandibles and at the base of them a pair of eyes; the bearer of these was snugly ensconced in the sand. The mandibles were stretched to their widest capacity and retaining, against opposite sides of the pit, so harmonizing in color with the sand as not to be readily noticed. In this position the larva would rest for hours unless disturbed, when it would withdraw from sight, but soon reappear and resume its watch.

My great interest, however, was in its method of taking its prey, and to witness this operation I provided a dozen or more ants of a small species, dropping them all into the pit at once; the larva with one sweep of its jaws secured three or four, and in a very short time killed or disabled them, but it soon dropped them and proceeded to kill most of the others before commencing its repast. Owing to their sluggish habit but very few succeeded in escaping. I was curious to see if the larva would attack as readily larger and more savage species, and the next day secured the largest specimen I could find of the Red Ant, *Formica sanguinea*—noted for its courage and ferocity. I dropped the largest of these on the sand in the jar, hoping it to find its way into the pit, which it soon did, hesitating a moment at the brink and then walking to the bottom. At the instant that the ant came within reach the larva closed its jaws upon one of its legs, and for a few moments I witnessed quite an exciting contest, the ant turning and twisting to find its adversary and biting savagely at everything within its reach, the larva endeavoring to draw far back into the sand, then by protecting itself and pressing the ant so close to the surface as to allow but very little room for movement. The ant finally freed itself from the jaws of the larva, but did not at once succeed in leaving the pit; the larva instantly almost entirely uncovered itself, and slashed right and left with its mandibles, seeming to be in a perfect fury at the loss of its prey. It also threw sand rapidly, but I could not see that the sand struck the ant except when it tried to escape up the sides of the pit back of the larva; then the sand invariably struck it and brought it to the bottom. The ant finally escaped, but the next day was again caught and its juices sucked dry.

In no instance did I see so much resistance offered as in this case, usually the ants seemed to realize that their adversary was one with which they could not cope. From my observations I concluded that the larva trusted rather to its long mandibles and the inability of its prey to readily climb the walls of the pit, than to sand throwing where it did not capture them in the first attempt, for I saw it throw sand in but few instances. I did not see it in the act of digging its pitfall but once; it was then midnight and I did not stay to witness the completion. I noticed only that it threw the sand out with its head, working very rapidly. I have sometimes left the room to return in less than an hour to find a completed pit where before there was no sign of it. From the day of capture to May 11th I kept it supplied with ants, of which it destroyed numbers every day, but on the latter date, either by design or accident, its pit was

filled level with the surface, and from this time to the time of pupating it dug none, remaining hidden most of the time and but once taking any food, then capturing an ant while concealed by a few grains of sand. On June 4th it constructed a round cocoon of silk, covered with grains of sand, and about one-half an inch in diameter. I presume it immediately pupated, but did not open the cocoon to ascertain. On July 8th the imago appeared and proved to be *Myrmelon immaculatus*.

In the larva state it is certainly in some respects the most interesting insect I have ever seen, its very activity and pugnacity exciting admiration; its mandibles were always ready to close upon any intruding object. When I first obtained it I wished to preserve a description and in order to accurately observe the colors I was obliged to remove the fine grains of sand that were entangled in the short hairs on the body; this I did with a camel's hair brush, an operation to which the larva decidedly objected, but it forced its ground and fought it out, constantly seizing the brush between its mandibles, often in its attempts to reach it springing quite clear of the table.—*H. Moody, of Malden, Mass., in the "Canadian Entomologist."*

**About Pain—Insect and Human.**

The poet insists that a crushed insect  
In corporal sufferance finds a pang as great  
As when a giant dies.

Good poetry, perhaps, but bad physiology and metaphysics. Man has a mind and an exquisitely sensitive nervous system. Beetles have neither, and as the pangs of human dissolution are mental as well as physical, and bodily pain is a nervous sensation, it is evident that an expiring bug, which has neither soul nor spinal marrow, cannot feel "a pang as great as when a giant dies." The lower the animal in the scale of creation, the less pain it must experience from injury and in the act of dying. If anglers believe that a worm or a minnow suffered the same torture from the implement as a human being, they would hardly consider it sport to fish with "live bait"; and if epicures surmised that a stabbed oyster felt all the agonies of a stabbed Christian, they would be unable to swallow the gelid victims by the dozen and smack their lips over the repast.

If the poet's doctrine were true, what a set of monsters we should be! To keep a lawn in proper trim, it is necessary to draw a ponderous roller over it now and then. Every blade of grass supports its colony of insects—the sward is alive with creeping, wriggling, jumping things, over them goes the remorseless cylinder, slaying millions. If each endure the agony of a human death, what should we think of the gardener and his employer! But it is not so. Pain is relative. Creatures are susceptible of it in proportion to the perfection of their structures. A trout can feel more of it than an oyster; a quadruped more than a fish, an insect or a reptile; and man infinitely more than any of the soulless and comparatively brainless brutes.

Nevertheless, whoever wantonly kills or injures any living thing is not blameless. Many good people have their doubts about the innocence of angling—as a sport. People who fish to live, one can have nothing to say against, but people who live to fish, as the sentimental Isaac Walton did, and as some of his disciples do, are not so excusable. When a worm is pricked with a hook, he manifests unmistakable signs of not liking it. He may not experience the pangs that an animal with a backbone would suffer under the same circumstances, but he feels as a worm, and even a worm's feelings should be measurably respected.

It is generally supposed that circumstances being equal, one man suffers as much pain from a given amount of mutilation or injury as another. It is, nevertheless, unquestionable that men differ as materially with regard to their susceptibility to pain as in their capability of bearing it manfully. Everything in these cases depend upon the will. Much depends upon the fineness or the coarseness, the weakness or strength, of the sensorial organization. The patient who writhes and cries out under the surgeon's knife, may be as brave as he who lies silent and impassive on the operating table.—*Pacific Rural Press.*

A familiar acquaintance with our insect enemies and friends, in all their forms and disguises, will afford us much help in the discovery and proper application of the remedies for the depredations of the former, and will tend to remove the repugnance wherewith the latter are commonly regarded.—*Harris.*

### Veterinary Department.

#### Disease of Joints.

##### THE KNEE JOINTS.

The knee joint is very large and important, and is liable to many injuries, as sprain, which is immediately followed by extensive inflammation, the symptoms of which are tolerably well marked, but as a matter of course, vary somewhat, according to the extent of the injury. When severe, there is considerable swelling around the joint, the horse is lame, and when trotted the lameness is greatly increased, which is a marked peculiarity of knee joint lameness. The horse when standing, slightly bends the knee, and if the joint is quickly flexed or given a rotatory motion he evinces great pain, which is immediately shown by his instantly rearing up. In the walk he brings the leg forward with a swinging motion. Inflammation of the knee is very apt to result in partial or complete stiffness of the joint. In slight sprains of the knee there is very little swelling, and the symptoms are not so well marked, and considerable difficulty is sometimes experienced as to the precise seat of the lameness, especially by people who are not aware of the structure of this beautiful but complex articulation. In the treatment of injuries in this situation, however trivial, it is of the utmost importance that the patient should be allowed perfect rest. It is often desirable that he should be kept standing in his stall, and the leg carefully bandaged with a properly applied flannel bandage. The following liniment may also be used several times a day: equal parts of laudanum, tincture of arnica and tincture of camphor. In prolonged cases it is generally necessary to use a powerful counter irritant, as cantharidine ointment or tincture of cantharides, which should be applied around the whole joint.

##### Disease of the Joints in Foals.

This disease is very common in Canada and causes a very serious loss to breeders of horses every year. The disease appears to be of a rheumatic tendency, involving the joints of the extremities, and is due to some constitutional derangement or disturbance, and is probably induced in some cases by well marked exciting causes.

The disease usually appears shortly after birth, and it is rare that a foal becomes afflicted after two months old. It is most likely to occur in weakly foals, that have difficulty in standing, and therefore without very great attention such weak little animals generally fail to obtain a proper supply of nourishment. It may also be induced by exposure to cold, or any sudden changes in temperature, or from the injurious effects of cold damp stables or boxes.

We believe that a very great predisposing and prolific cause, and one which appears to be on the increase, is that of allowing valuable horses to serve too many mares during the season. No doubt owners of entire horses are desirous of having great returns, and breeders are naturally anxious to procure the best horses, and therefore some valuable animals are very much abused, and their progeny instead of being strong and healthy, are weak, sickly animals, and a large percentage die a few days after birth.

The symptoms of this common complaint are very plain and well marked. The foal is observed to be weak, and slight swelling appears about the fetlocks, knees or hocks; these swellings are soft puffy and tender; a few days they increase in size and become exceedingly painful; the little sufferer is almost unable to move, his mouth is hot and dry, the pulse weak, and quick, and the body heeled up. The enlargement of the joints will burst and freely discharge a watery matter; very often extensive sloughings are the result, exposing the ligaments and tendons and even the bones; rendering the patient a most pitiable looking object. When the disease assumes this stage it is utterly incurable, and it becomes an act of mercy to destroy the suffering animal. In cases however where the swelling does not end in the sup-

purative process they may be treated with success. The foal should be kept in a warm place, warm and well bedded with good clean straw, great attention should also be paid to the condition of the mother, so as to insure a proper and regular supply of milk.

The limbs are occasionally benefited by being gently stimulated with a mild liniment, a equal parts of tincture of camphor and tincture of opium, and to a moderately strong foal two grains of the iodide of potassium may be given twice a day, dissolved in two ounces of water.

As the animal gains strength he may be allowed to run out a few hours daily, but every care must be taken neither to expose the patient to a very hot sun, nor to a cold temperature. We believe that young foals, when weak, are often seriously injured from the effects of a hot summer sun.

#### Clacking and Over-Reaching in Horses.

Clacking, or, as it is sometimes called, 'forging,' is the name given to the sound produced by the hind shoe striking the fore one in progression. It is usually heard at the trot, and seldom noticed in adult horses. It is most common in young horses out of the mill, and especially noticed when they are bred. The noise is produced by the hind shoe striking the under surface of the fore one just behind the toe, not at the heels. When the blow has been repeated so as to have an impression, the marks are found on the inner edge of the fore shoe. This is important, as it shows that the length of the toe is not at fault, and it suggests the removal of the part where striking occurs. Removal of this edge is equal to making a shoe concave instead of flat on the ground surface, and such a shoe is found to effectually prevent a recurrence of this objectionable noise.

The ordinary hunting shoe, especially the narrow one made in a "cross" is the best possible for harness horses, where more substantial is required for wear, the ordinary shoe seated on the outside instead of the inside is usually sufficient. A case may be met with in which this alteration is not effective. We must then alter the hind shoes, making them square at the toe, with two clips—one on either side—and set back a little on the foot. The wall at the toe should not be pared off, but allowed to protrude a little.

Too often the hind shoes or the feet suffer alteration, sometimes of a very objectionable kind; for instance, we have seen the toe of a hind shoe made diamond shaped and pointed, so as to come in contact with the sole of the fore shoe, and so to damage the shoe. This is a most objectionable and dangerous experiment. It leaves the offending part of the fore shoe untouched, and favors the direction of injury to the foot. Even when the hind shoe is only made short and placed on the heel of the fore shoe, it is a risk of the horn at the toe being rapidly worn, and there is a shortening of the lever of the foot which must tend to less and less the power of progression.

If a horse "clacks," it is a sign that the fore shoe, altering the fore shoe as we have described; improve his condition, and ride him to the bit, but not just to the bit. The hind shoe should be made to fit the foot of the fore shoe, and not to be a source of a bruise, but more often a source of a small, round portion of skin being hit hence nearly detached from the hoof. The offending part of the hind shoe is to be cut off, and the heel of the fore shoe must be raised so that the injury must be caused by the hind shoe striking the heel, and the skin caught as the fore shoe strikes. The inner edge at the toe of a hind shoe becomes very sharp after a few days' wear, and will cut like a knife.

As in "clacking," the indication for prevention is to remove the offending edge. This cannot be thoroughly done with a file, but when the shoe is hot the edge behind the toe can be cut out with the "filer" so as to leave the shoe concave. An over-reaching is an accident, and is not to be prevented well always to shoe hunters, and to hunt shoes the occurrence. The nearest and best hind shoe for a hunter is made, like a race one, in a "cross," and presents a concave ground surface, and rounded edges.

When a heel is injured, it is always well to save the pieces of skin. It should not be cut off until it is certain that it will not reunite to the tissue beneath. One good fomenting on reaching the stable is enough; after that use the simple dressing, and under no circumstances use any poultice which only increase the chances of a slough and retard the healing process. In all healing operations, apply a mild stimulant, such as a weak solution of with a mixture of carbolic acid one part to glycerine, twenty parts;—*Scientific American.*

### Correspondence.

## THE CANADA FARMER

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## The Canada Farmer.

TORONTO, CANADA, AUGUST, 30 1873.

### Steam Ploughing and Farm Locomotives.

We give on another page illustrations of a recent invention, patented by Mr. Parvin, of Farmington, Ill. From what we have seen of it we believe it is a step in the right direction, and the best success due to the enterprising originator. But whilst on the one hand there is much to admire in its originality of design, there are on the other grave prospective dangers of its failure. Its great weight must first be considered as injurious and not altogether necessary. If steam tractors were placed on the wet lands of early spring or fall, the "feet" on which it rests, and to which it owes its originality, must clog with dirt, and become unmanageable, while the weight of the machine, would prove injurious to the land, and very difficult to manage. The number of joints, also, that are constantly exposed to wear from attrition of soil and gravel constantly surrounding these parts, must prove a serious objection. The cost of the machine is also necessarily high, principally owing to its great weight, and although in future, demand and the numbers manufactured may lower the price, still it is a very heavy machine, and must always be liable to wear and become injured when worked constantly.

It has been their weight, with the consequent cost, and want of power to move about on the farm, that has proved so destructive to the usefulness of all the "locomotives for common roads" that have hitherto been imported into the Dominion. The weight of these limbs took an active part in introducing the first implement of the kind into Canada, and has since that time constantly retarded with every step, the progress and utility of those subsequently imported, carefully noting the difficulties under which each labored, and the cause or causes of failure.

The first imported "farm locomotive," was made by Avelling & Porter, and was worked on the River St Lawrence. The next two that came were made by Corbett & Son, and were similar to the first except in minor particulars. Both makers are men of renown in Britain. English farmers use

large numbers of their engines, and they are also exported to the continent, but they are perfectly useless here. As road steamers, our bridges will not bear their weight with safety, and we have often seen the engine stuck in the mud, and when ascending hills their construction tells terribly against their utility. On loose macadamized roads, they have often been obliged to wait until the pressure of steam reached seventy pounds per inch before they could surmount obstructions, and that without any load attached, except their own unwieldy weight. For farm work, the want of power and the destructive weight rendered them absolutely useless. These two steam carriages not being of any use, locomotives are now condemned as useless for any such work, and are used for ordinary stationary power. The next "locomotive for common roads," that made its appearance in Canada was imported by a gentleman of the city of Toronto. It was called the "Thompson road steam-r." The one had its wheels eased with large bands of India rubber, protected by iron bands, and attached to the wheels by chains at the sides. These bands were used to cause the wheels to assume a flattened figure on that portion which touched the earth. This was done to increase its tractive power, and prevent the wheels slipping round. It is to contend with this difficulty, that Mr Parvin has invented his ingenious feet. The enormous masses of rubber were several inches in thickness, and about fifteen inches in width, and whilst they afforded a certain tractive force by the great weight flattening the lower portion of the rubber, the engine had also to contend with the impellment so formed, placed directly before the wheels, and of course it was constantly climbing a hill.

The engines that propelled this carriage were far too small, and proved defective in their construction. We have often seen the steam gauge showing 119 to 169 lbs. to the inch. Subsequently, however, this was somewhat amended. When placed in a wet soft spot, it could hardly extricate itself without any load, unless the steam was enormously high, but on a smooth level road, or when surmounting a low hill, it was capable of drawing six loaded waggons, each containing a two horse load, but usually four such waggons were quite enough for it to haul; and it was stated as a fact, that teams, hired at three dollars a day were cheaper, more efficient and more reliable, all things considered, than this engine for road work. Consequently this engine must also be included amongst the failures, although it certainly was the best, and did the most work in comparison with the others.

With all these failures before us, it may well be asked, how can we hope to succeed in this direction? and where can our farmers obtain such an engine as they all feel the want of, that can be cheaply purchased, easily managed, entirely efficient when at work, and capable of drawing three to six ploughs across our Canadian fields, thrashing the grain, sawing the wood, hauling lumber or goods on the roads; doing as a day's work in the field, from five to ten acres a day of deeply and well ploughed land; or hauling at one load three to six tons of merchandise or freight (twenty miles and return) on ordinary macadamized roads? And last, but not least, an engine that can be furnished at a reasonable price, and made in Canada? There need be no hesitation in stating, that all this can be done if only well directed mechanical genius be applied to the task.

We will, however, enumerate some of the most necessary qualities which such an engine should possess.

1st. The whole locomotive should not exceed in weight two and a half to three tons.

2d. The wheels should be provided with such appliances as will render slipping round impossible, and at the same be so constructed that they will not clog in ordinary soil.

3d. The steering apparatus should enable the engine to turn in its own length, dragging after it its load of ploughs, in at one end of the furrow and out at the other, like an ordinary team.

4th. The control of the power should be such that an engine of ten-horse power can instantly be converted, by gearing and increased speed, into one of fifty-horse, whilst at the same time the load will move in the same proportion slower.

5th. It should be capable of going almost anywhere that an ox team can go with a waggon, and as ordinarily used about a farm, through gates and gaps, and in fact be completely under control.

6th. The cylinder should be oscillating, of ten inches diameter, with two inch stroke, and there should be two of them with cranks set at right angles, so arranged that one or both cylinders can be used at a time.

7th. The "cut off" to the steam should be so regulated that when doing light work a mere "cloud" of steam is used, although when first let on to the engine, it must have a pressure of fifty lbs. per square inch, and be instantly cut off and used expansively; on this point mainly depends the economy in steam when light work is being done, and by altering the segment on the flat wheel that regulates the cut off, the full power of the engine can instantly and for one moment be obtained, to be again reduced to a minimum when the "stopping point" is passed.

To plough from eight to ten acres between sunrise and sun-set would only require five teams, probably four could do it, if they could stand the long hours. But an engine never tires, feed it with fuel and water, and you may work it each day twenty-four hours as well as twelve. It wants no dinner, and it never complains of the torrid heat of summer; it never wants exorbitant wages in busy times, and consequently it is of all other sources of labor and power the best adapted for Canada, where fire-wood is cheap, and water generally plentiful, and where labor is extravagantly high and scarce.

An engine and boiler, well cared for, will last a man's life-time. We are now working an engine purchased upwards of thirty-three years since. It has not cost an average of five dollars a year for repairs, and is now equal to new. But this extreme endurance is altogether due to its having always been carefully watched and attended to. No minor points have been neglected. This freedom from accident is due to constant surveillance, and not to any mechanical skill of the persons in charge. They have always been sober laboring men.

Let us not, therefore, be afraid of steam. There is absolutely less danger than with horses, if proper care and intelligence are used. Let us apply to the proper quarter and obtain a government grant of \$2000 00 to be given as a bonus to any one who will construct a farm locomotive embracing the foregoing requisites, and mechanical skill will not be long in solving the problem of steam ploughing, and producing an engine that will be of invaluable service both on the farm and on the road.

#### What Constitutes an Agricultural Education?

The altered state of Agriculture now as compared with what it was even at the commencement of the present century, has, as we pointed out in our last issue, rendered a special education imperatively necessary to enable the farmer to pursue his business profitably and intelligently. This is a matter upon which all thoughtful men who have devoted attention to the subject are agreed, but upon the question of what constitutes that education, there has been and indeed still is much diversity of opinion.

Educational matters have ever proved prone of dispute; but the necessity of bringing into the same sphere of action—of blending together and harmonizing the work and the ideas of scientific

men on the one hand, and practical men on the other, has rendered agricultural education unusually so.

As a branch of education it owes its origin to the application of scientific principles to the cultivation of the soil, and the subject of dispute is based mainly upon the question of introducing or excluding the study of these principles in the education of the farmer.

The scientific men argue that a school or college course for this purpose should be confined to strictly scientific studies, and practical acquaintance with the details of farm management obtained either before or after such a course.

The purely practical educationists insist that there is no necessity for making the farmer acquainted with the principles that underlie the work of the farm, and that his education should merely consist of a training in the various operations and general management of a farm, worked upon scientific principles.

Experience has proved that both these theories of what should constitute an agricultural education, are erroneous, and institutions conducted according to either have not only failed to accomplish the object for which they were intended, but have largely contributed to bring the object aimed at into disrepute.

If in accordance with the former theory, we take a boy from a common school, and for two, three, or four years in succession confine his attention to scientific studies, it cannot be denied that his mind is likely to receive a bent towards scientific investigation, or other strictly mental occupation, rather than to the application of these principles in the work of the farm. In short he is more disposed to preach than to practise, —he seeks to live by his head and not by his hands, and shrinks from what he now erroneously regards as the drudgery of farm life.

Hence young men, educated under such a system, too frequently fail to return to the farm. The farming has been educated out of them,—they seek for a town rather than a country life, because they believe they will find there occupation and associations more in harmony with their previous career. Even if from necessity they return to the farm, they do so at a great disadvantage. The application of scientific principles to the work of the farm, involves the introduction of new and improved practice and appliances of which they are necessarily ignorant, while a thorough knowledge of them is indispensable to success, and any system of agricultural education not providing instruction and requiring practice in these matters, must be incomplete, if not injurious.

Such are the arguments usually brought forward by the strictly practical educationists in opposition to what may be called the theoretical system, and while there is much good sound sense in their reasoning they themselves err as far in the opposite direction. Their system inefficient would reduce the farmer to a mere machine for carrying blindly into operation the teaching of the scientists. We can have no sympathy with such a system as this. It is the exploded doctrine of a by-gone age, and were it not that even at the present day it has some advocates, it would be unworthy of notice. Those who support such a plan of education seem to forget that this is, happily, an intellectual age; that men's minds, are now stimulated by a good common school education, their reasoning faculties are aroused, and they will no longer voluntarily devote themselves to an occupation that does not afford ample employment for these faculties. They seek food for thought, and if their education is not such as to enable them to derive this intellectual enjoyment from the work of the farm, they seek it elsewhere.

By such an illiberal system, the all-important art of husbandry would be delegated to the hands of the intellectual drones of society, and the better minds amongst us betake themselves to other pursuits, and thus, for lack of a judicious education, leave behind them a calling than which there is none more con-

ductive to intellectual enjoyment if the mind be properly directed to find it.

Apart, however, from these considerations, the system is fallacious—it is rotten to the core—it is based upon the assumption that the practice—the mode of management of all farms is alike or nearly so, and that a man thus trained in the management of the farm upon which he received this so-called education should bring the same tactics to bear upon any other farm to the working of which he may be called. He must necessarily do so, as he is left in ignorance of the principles upon which that particular mode of management has been adopted, and is consequently unable to modify his practice judiciously, so as to meet the altered circumstances under which he may be placed. The consequence can only be blundering, until by dear-bought experience, he is enabled to adapt his practice to his new sphere of action.

There is an intermediate course between those two extremes, which experience has proved to be the correct one. On this method, what may be called a working knowledge of the principles or theory of agriculture is imparted, conjointly with a thorough training in the daily operations of the farm, and the bearing of those principles upon the practice is kept prominently before the student's mind. Thus he is made intimately acquainted with the "reason why" of every operation. He is led to find food for thought in every manipulation of the soil, in every atmospheric change—in the working of every implement he handles—in the feeding of his stock—in the growth of his crops and in the effects they produce upon the soil. His practice suggests new principles, and his knowledge of principles suggests new and improved practice.

It is to minds so trained that agriculture must look for advancement in the future, and it is to the work of men of this class that it mainly owes its present position. It is no longer an empirical art, and it must be followed—if followed profitably—by men having at least a fair knowledge of the scientific principles upon which it is based.

We have reason to know that our Provincial Agricultural College is being organized upon this intermediate system. It does not propose to make chemists, botanists, geologists, entomologists, or physiologists of its students, but to give them such a general acquaintance with the natural sciences, as will enable them to apply the lessons they inculcate in the actual work of the farm. Above all, it proposes to train them in the performance of that work, according to the most approved and advanced methods.

#### Bow-Park Sale of Short-horns Postponed.

The sale of Mr. Brown's Short-horns, &c., which was advertised to take place on Thursday, the 15th of September, has been postponed until Wednesday the 15th of October.

Exchanges, &c. that may have advertised, or noticed the sale in any way, will please give publicity to this notice of postponement.

The Annual Show of the Wilmet Agricultural Society will be held in New Hamburg on Friday, Sept. 26th.

For the two-year-old Hereford heifer exhibited by Earl Southesk, and which gained the first prize in her class, at Hull, 120 guineas have been offered and refused.

**SOUTH RIDING OF WATERLOO SHOW.**—The days fixed for holding the above show are Tuesday and Wednesday, 11th and 15th October. Implements and metal manufacturers are to be brought on the ground the first day.

The Annual Exhibition of the Union Agricultural and Industrial Association, in connection with the Arnprior Horticultural Society, will be held on the grounds of the Society in Arnprior, on the 9th, 10th and 11th September next.

## Agricultural Intelligence.

### Harvest of 1873.

The following are reports as to the prospects of crops in the vicinity of stations on the Great Western Railway and branches:—

**CLIFTON.**—Fall wheat, 12½ bushels per acre, spring wheat, 10; barley, 16; oats, 25; rye, 15; peas, 15; corn, 25; potatoes, 30; hay 1 ton per acre. Crops reported light owing to dry season.

**MERRITTON.**—Fall wheat, 15 bushels per acre, spring wheat, 12; barley, 12; oats, 20; rye, 20; peas, 25; potatoes, 50; hay, ½ ton per acre. Very poor crops in this vicinity.

**St. CATHARINES.**—Fall wheat, 14 bushels per acre; spring wheat, 20; barley, 32; oats, 35; peas, 20; corn, 50; potatoes, average crop, but injured by bug; hay, 1½ tons per acre. Crops generally under average, owing to the lateness and drought of the season.

**BEAMSVILLE.**—Fall wheat, 15 bushels per acre; spring wheat, 10; barley, 20; oats, 30; peas, 12; potatoes, average crop; hay, 1½ tons per acre. Crops reported poor in general.

**GRIMSBY.**—Fall wheat, 20 bushels per acre, spring wheat, 15; barley, 25; oats, 35; peas, 25; corn, 25; potatoes, 100; hay, 1 ton. Crops lighter than last year, but quality good.

**WINONA.**—Fall wheat, 25 bushels per acre; spring wheat, 20; barley, 35; oats, 40; corn, 60; potatoes, 200, but bug devouring vines badly; hay, 1½ tons. Spring crops good, some fall wheat winter-killed.

**HAMILTON.**—Fall wheat, 18 bushels per acre; spring wheat, 15; barley, 30; oats, 50; peas, 30; hay, 1½ tons. Prospects of root crop good.

**STONEY CREEK.**—Fall wheat, 20 bushels per acre, spring wheat, 15; barley, 35; oats, 45; rye, 20; peas, 25; corn, 75; potatoes, 75; hay, ½ ton.

**DUNDAS.**—Fall wheat, 20 bushels per acre, spring wheat, 20; barley, 35; oats, 50; rye, 15; peas, 30; hay, 1½ tons.

**CORNWALL.**—Fall wheat, 12 bushels per acre, spring wheat, 10; barley, 25; oats, 36; rye, 10; peas, 30; corn, 25; potatoes, 100; hay, 1½ tons. General prospects good, better than last year.

**LYONS.**—Fall wheat, 18 bushels per acre; spring wheat, 15; barley, 35; oats, 55; peas, 35; corn, 30; potatoes, 200; hay, 1½ tons. General appearance of crops could not be better, prospects excellent.

**HARRISBURG.**—Fall wheat, 12 bushels per acre, spring wheat, 10; barley, 20; oats, 35; peas, 25; potatoes and corn looking well; hay, 1 ton per acre. Wheat crops, under average but good sample.

**BRANTFORD.**—Fall wheat, 15 bushels per acre; spring wheat, 10; barley, 30; oats, 40; peas, 20; corn and potatoes, average yield; hay, about 1 ton per acre; Spring wheat, a failure in some places, oats very good.

**PARIS.**—Fall wheat, 8 bushels per acre, spring wheat, 12; barley, 30; oats, 50; peas, 20; corn, 20; potatoes, 200; hay, 1½ tons. Wheat, injured by frost and grubs; other crops looking well.

**PREVOST.**—Fall wheat, 14 bushels per acre; spring wheat, 20; barley, 35; oats, 55; peas, 28; corn, 35; potatoes, 100; hay, 1½ to 2 tons per acre. Fall wheat, light; spring crops considered very good.

**EASTWOOD.**—Fall wheat, 35 bushels per acre; spring wheat, 10; barley, 30; oats, 50; peas, 40; potatoes, 200; hay, 2 tons per acre. Potatoes suffering from the bug.

**WOODSTOCK.**—Fall wheat, 22 bushels per acre, spring wheat, 12; barley, 30; oats, 40; peas, 35; potatoes are a very good crop; hay, about average. All crops looking well except spring wheat.

**BRACHVILLE.**—Fall wheat, 15 bushels per acre, spring wheat, 10; barley, 25; oats, 35; rye, 25; peas, 30; potatoes, average crop, hay, 1½ tons. Fall wheat much winter-killed. Spring wheat cut off by wire-worm.

**INGERSOLL.**—Fall wheat, 15 bushels per acre; spring wheat, 15; barley, 30; oats, 45; peas, 25; potatoes, 100; hay, 2 tons. Crops reported very promising.

**DORCHESTER.**—Fall wheat, 25 bushels per acre, spring wheat, 8; barley, 50; oats, 50; peas, 60; potatoes, 70; hay, 2 tons.

**LONDON.**—Fall wheat, 25 bushels per acre; spring wheat, 15; barley, 26; oats, 40; peas, 30; corn and potatoes, looking well; hay, about 2½ tons per acre. Root crops up to average.

**KOMORA.**—Fall wheat, 18 bushels per acre; spring wheat, 19; barley, 39; oats, 40; rye, 20; peas, 18; corn, 16; potatoes, 50; hay, 1½ tons to the acre.

**MORNE BAYNEGS.**—Fall wheat, 25 bushels per acre; spring wheat, 15; barley, 40; oats, 40; peas, 35; corn and potatoes, good crop; hay, 1 ton per acre.

**STRAITHON.**—Fall wheat, 25 bushels per acre; spring wheat, 10; barley, 30; oats, 45; peas, 35; corn, 45; potatoes, 150; hay, 1½ tons. All crops have suffered from drought.

**GRINOR.**—Fall wheat, 22 bushels per acre; spring wheat, 20; barley, 30; oats, 35; peas, 35; corn, poor crop; potatoes, average yield; hay, poor—not more than half crop. Prospect much improved by the late rains.

**NEWBERRY.**—Fall wheat, 20 bushels per acre; spring wheat, 10; barley, 30; oats, 30; peas, 25; corn, 30; potatoes, average yield; hay, ½ ton per acre. Root crops look well.

**BOTHWELL.**—Fall wheat, 22 bushels per acre; spring wheat, 15; barley, 25; oats, 35; peas, 30; corn, 20; potatoes, 35; hay, 1½ tons.

**THAMESVILLE.**—Fall wheat, 25 bushels per acre; spring wheat, 20; oats, 20; peas, very light crop; potatoes, much up to average; hay, 1½ tons. Crops looking very bad.

**BRIER RIVER.**—Fall wheat, 25 bushels per acre; spring wheat, 15; barley, 35; oats, 30; rye, 20; corn, 60; potatoes, 45; hay, 1 ton per acre. Hay and spring wheat suffered severely from drought.

**TORONTO.**—Fall wheat 20 to 25 bushels per acre; spring wheat, 15; barley, 18; oats, 30; peas, 30; potatoes, good crop; corn and hay, below average.

**PORT CREDIT.**—Fall wheat, 25 bushels per acre; spring wheat, 20; barley, 30; oats, 40; peas, 40; potatoes, 200; hay, 1½ tons.

**ORVILLE.**—Fall wheat, 15 bushels per acre; spring wheat, 10; barley, 15; oats, 30; rye, 15; peas, 20; potatoes, 120; hay, ½ ton. Crops all under average owing to dry season.

**PROVOST.**—Fall wheat, 18 bushels per acre; spring wheat, 18; barley, 22; oats, 32; rye, 20; peas, 28; potatoes, 30; hay, ½ ton. Crops generally light.

**WELLINGTON SQUARE.**—Fall wheat, 15 bushels per acre; barley, 30; oats, 40; peas, 20; potatoes, nearly destroyed by bug; hay, very light.

**SARNIA.**—Fall wheat, 25 bushels per acre, spring wheat, 15; barley, 30; oats, 40; rye, 25; peas, 50; corn, 40; potatoes, 150; hay, 1½ tons. Fall wheat, good sample; spring wheat not so good.

**WYOMING.**—Fall wheat, 27 bushels per acre; spring wheat, 20; barley, 20; oats, 50; peas, 39; corn, 30; potatoes, 70; hay, ½ ton per acre.

**WATERLOO.**—Fall wheat, 25 bushels per acre; spring wheat, 16; barley, 30; oats, 40; peas, 25; potatoes, 200; hay, ½ ton. Crops good average yield, excepting hay.

**PORT EVELY.**—Fall wheat, 15 bushels per acre; spring wheat, 20; barley, 35; oats, 35; peas, 27; corn, 70; potatoes, 100; hay, 2 tons per acre.

**ALBION.**—Fall wheat, 20 bushels per acre, spring wheat, 15; barley, 25; oats, 49; peas, 25; corn, 40; potatoes, 150; hay, 1 ton per acre.

**CAYCE.**—Fall wheat, 20 bushels per acre; spring wheat, 18; barley, 20; oats, 40; peas, 30; potatoes, 100; hay, ½ ton per acre.

**BRANFORD.**—Fall wheat, 18 bushels per acre; spring wheat, 12; barley, 25; oats, 40; peas, 20; corn, 30; potatoes, good crop; hay, 1½ tons per acre. Crops all good in this vicinity.

**PRESTON.**—Fall wheat, 10 bushels per acre; spring wheat, 10; barley, 35; oats, 50; rye, 15; peas, 30; corn, 30; potatoes, 150; hay, 1 ton per acre. Root crops promise well.

**HEPPELTON.**—Fall wheat, 15 bushels per acre; spring wheat, 17; barley, 35; oats, 40; peas, 30; potatoes look well; hay, 1 ton per acre.

**GULLIN.**—Fall wheat, 15 bushels per acre; spring wheat, 15; barley, 35; oats, 45; rye, 25; peas, 40; potatoes, 400; hay, 1 ton per acre. Fall wheat, winter-killed in many places, but harvest generally heavier than for several years back.

**FLORA.**—Fall wheat, 30 bushels per acre; spring wheat, 20; barley, 45; oats, 55; peas, 35; potatoes, 150; hay, 1½ tons per acre. All crops looking splendid, and above the average, except spring wheat and hay.

**FERRIS.**—Fall wheat, 30 bushels per acre; spring wheat, 20; barley, 30; oats, 40; peas, 25; potatoes, 150; hay, 1 ton per acre.

**WALKERTON.**—Fall wheat, 25 bushels per acre; spring wheat, 18; barley, 30; oats, 40; peas, 25; potatoes, 250; hay, 1 ton. Crops all reported good.

ALMA.—Fall wheat, 28 bushels per acre; spring wheat, 22; barley, 30; oats, 45; peas, 28; hay, about 1½ tons per acre.

DRAYTON.—Fall wheat, 37 bushels per acre; spring wheat, 30; barley, 40; oats, 49; peas, 30; potatoes, 60; hay, 1½ tons per acre. Crops reported excellent; all kinds of grain looking well.

PALMERSTON.—Fall wheat, 30 bushels per acre; spring wheat, 20; barley, 18; oats, 35; peas, 35; potatoes, 200 to 250; hay, 1½ tons per acre. Wheat light in straw, but healthy in appearance.

LISROWEL.—Fall wheat, 20 to 25 bushels per acre, spring wheat, 16; barley, 30; oats, 40; peas, 25; potatoes, 150; hay, 1 ton per acre. Fall wheat, oats, peas and potatoes above the average.

HARRISTON.—Fall wheat, 20 to 25 bushels per acre; spring wheat, 20; barley, 40; oats, 60; peas, 40; potatoes, 200 to 250; hay, 1 ton to 1½ tons per acre.

CLIFORD.—Fall wheat, 35 bushels per acre, spring wheat, 28; barley, 40; oats, 60; peas, 29; potatoes, 200; hay, about 1 ton per acre. Crops better than for some years, and grain of excellent quality.

MILDMAY.—Fall wheat, 25 bushels per acre, spring wheat, 18; barley, 28; oats, 35; peas, 29; potatoes, 200; hay, 1 ton per acre.

PINKERTON.—Fall wheat, 30 to 35 bushels per acre; spring wheat, 20; barley, 30; oats, 50; peas, 30; potatoes, 150 to 200; hay, 1 ton per acre. All crops, except hay, ten per cent. above average.

FAIRLEY.—Fall wheat, 30 bushels per acre; spring wheat, 20; barley, 35; oats, 50; peas, 30; potatoes above average crop. Except hay, all crops one-third more than last year.

SOUTHAMPTON.—Fall wheat, 25 to 30 bushels per acre, spring wheat, 20; oats, 40; peas, average crop, large quantities sown; potatoes, looking well and uninjured by bug; hay, light. Prospects of harvest better than for many years past.

Mr H. K. Burroughs, Roxbury, sends the Country Gentleman a sample lock of wool, about 15 inches long, from one of the Cotswold ewes purchased by him from Mr Stone, of Canada. Her fleece weighed 14 pounds.

THE CROPS IN P. I. ISLAND.—The crops look splendidly and there is a promise of a more than usually bountiful harvest. The weather is cool and showery. The summer visitors from the continent, of whom there are a great number on the island just now, are delighted with the country and climate. — Cor. N. B. Telegraph.

CROPS IN MANITOBA.—For the last few weeks we have had some excessively warm weather, the two hottest days being 20th July and 5th August, when the thermometer stood 94 in the shade, and we have heard of its reaching 125 in the sun. Fortunately we have not heard of any cases of sunstroke. The rains following the heat have been unusually heavy, with much lightning in the westward. Still the crops where they have escaped the grasshoppers look splendid.

CROPS IN QUEBEC.—The prospects of a good crop in the Province of Quebec are thus set forth by the Argenteuil Advertiser:—The crops this year in the section around Arundel, Harrington, and Salaberry promise remarkably well, and the harvest is expected to be exceptionally good. Mr. Stannforth, a farmer there, has raised over 100 tons of hay, all well housed and will have over 1,000 bushels of oats. Other farmers have also done well. If immigrants could be induced to visit the district they would probably conclude there was no occasion to go further West, as a large extent of the best land is awaiting settlement, the soil being very fertile, and free from stone. Mr. Sydney Bellingham, who owns land there, says there is plenty of room for 3,000 settlers. In fact the advantages the county of Argenteuil offers to the agriculturist, stock-raiser, and manufacturer, require only to be made generally known to insure its becoming one of the most rich and populous districts in the province. Doubtless when it is traversed by a railway there will be more facilities for settling it, but land will not be so cheap. It is better to take time by the forelock and secure the advantage of increased value that the advent of the iron horse will bring to all kinds of real estate. We are informed that the French Canadians are spreading west into this county from St. Jerome, and adjacent districts, and as they are noted for large families, they must by natural increase, before many years, form a very conspicuous element in the population. Crown lands are remarkably cheap in this county, only one shilling and sixpence per acre.

Short-horns at Hull.

Our genial friend, Jno. Thornton, 15 Langham Place, London, Eng., sends us a list of entries and of prizes given at the last meeting of the Royal Society, at Hull, (July, 1873). To show how foolish our prejudice (now fast dying out, we are happy to say) for reds is, we give the colors of the prize animals.—Bulls over 3 years of 1, 1st roan, 2d white, 3d, roan, 4th roan; 2 year old, 1st roan, 2d roan, 3d red and white, 4th white; 1 year old, 1st roan, 2d red-roan, 3d red, 4th white; calf, 1st roan, 2d red and white, 3d roan. Reserve, roan, over 3 years old, 1st roan, 2d dark-roan, 3d white. Reserve, 1 year roan; heifers 2 years old, (or in English style) "heifers in milk or in calf not exceeding 3 years old") 1st red, 2d roan, 3d roan. Reserve, red; yearling, 1st red and white, 2d red, 3d roan. Reserve, roan; calf, 1st roan, 2d roan. Reserve, roan. To sum up, 1st prize, roan 6, reds 2, all prizes—roans 20, reds 7, whites 1. There was no first prize red bull; but, unlike last year, when the whites carried everything before them, there was also no first prize white bull. Our reader will remember that last year the first three aged bulls were all whites; this year three out of four are roan. It was generally thought by the bystanders that the white "Lothian," however, should have been first, instead of the roan "Telemachus." The judges evidently thought differently. It is worthy of note also and should be pressed home to the detractors of the dairy qualities of Short-horns—that in the tug for the best pair of dairy cows, open to all breeds, the prize was carried off by Mr. William Dunn, of Ellrhy Grange, on a pair of Short-horns. These who say, "Booth for the butcher and Bate for the pair," should notice also that Lady Pigot thought a pair of her Booths good enough millers to enter them for this prize. The Short-horns also carried off the prize for best pair of 3 year old heifers of any breed. —Home Journal.

Sales of Clydesdales.

The following sales of thorough bred Clydesdale horses were recently made by our enterprising friend, Mr. James J. Davidson, of Balsam Pickering:—Sir Walter Scott, dark brown, aged 3 years; got by Sir Walter from Darling 2d, sold to Mr. Bell, of Huntington, P. Q., for \$1,800. Scott's Pride black, imported, sold to Mr. William Moffat, Cuyahoga Co., Ohio, for \$1,550. Dandy, bay, aged 16 months, weight 1425 lbs, girth 6 feet 10 inches, got by Conqueror from Darling 2d, which won twenty prizes at our Provincial and local fairs. His dam and grand dam, were also winners of first prizes at the Highland Agricultural Society's Show. He was sold to Messrs. Lloyd and Lindsay, Macomb, McDonald Co., Illinois, for \$1,500. We had the opportunity of seeing this splendid animal while passing through en route for his future home in the West. An finer specimen of his breed it would perhaps be difficult to find anywhere on the continent. We congratulate Mr. Davidson on the result of his ventures so far, and trust that his future operations in the same direction may prove equally remunerative.

Short-horn Sales.

The sale of Messrs. Hughes and Richardson, Lexington, Ky., came off August 7th. Thirty-two cows and heifers were sold at an average of \$381 72 each, and thirteen bulls and 1 bull calves at an average of \$135 08 each; total, \$14,010. At the sale of Mr James E. Sudduth, Stony Point, August 5th, the prices were not quite so good. Twenty-four cows and heifers averaged \$293 51, and nine bulls and bull calves averaged \$168 00 each; total, \$9,559.

The following private sales have transpired during the progress of the public sales:—

Booth bull "Breadplate, to J. H. Pickrell, III, \$6,250. Bull calf, by Breadplate, to J. H. Kissinger, Mo., \$1,200. 11th Duke of Geneva, sold by Mr. G. M. Bedford to Geo. Murray, Racine, price not made public. Yearling bull, bought of A. J. Alexander by Chris Jones & Co., Cal., dam a Mazurka \$350.

On August 13th, Dr Stevenson, of Greencastle, Indiana, held a sale of Short-horns, when forty-two cows and heifers averaged \$363 69 each, and twelve bulls and bull calves averaged \$193 75 each.

Cattle Diseases.

Cattle Plague.

Reports from Vienna and Pesth agree in the statement that cattle-plague has been stamped out in Hungary, where since the last outbreak the government have prevented the movement of animals, except under very severe restrictions and veterinary inspection. The disease, however, still continues in Croatia, Slavonia, and the military frontier; also in the district of Avret-His-san, at Salonica.

Foot-and-Mouth Disease.

This disease has appeared among the cattle in Algeria. It seems to have spent itself in Great Britain and Ireland, and also in many countries in Europe.

Small Pox and Scab.

Both these sheep diseases exist in Pomernia, and as it this period of the year the inoculation of sheep and lambs is generally had recourse to, we may soon expect to hear of an increase of sheep pox.

Picuro-Pneumonia.

Our information is to the effect that very little alteration has taken place in the extent of this disease in Great Britain. We learn also that the malady has appeared among the cattle at Damascus, and that it has caused great losses in some of the surrounding villages.

Lead-Poisoning Through London Manure.

The assistance of the College has very recently been sought for the purpose of investigating a somewhat serious loss in two herds of cattle—one in Hertfordshire, and the other in Sussex. In the Hertfordshire case nine animals died out of a herd of forty-one, the whole being more or less affected. The animals were turned to pasture on May 3d, at which time they were all in perfect health. Within a few days symptoms of illness were observed in several of them, and on the 13th one of the animals died. This was followed by an aggravation of the disease and the death of others, until nine had succumbed to the malady. In the Sussex case, the herd consisted of twenty-three animals. They were put to grass on May 25th, and went on well till the seventh or eighth day afterwards, when several of them were observed to be ill. On June 1st three died, and the illness continuing, a fourth died on June 12th, and a fifth on June 14th. In each case both the symptoms and post-mortem appearances were indicative of lead-poisoning. Confirmation of this opinion was subsequently obtained by a chemical analysis of the contents of the stomachs, &c., large quantities of the carbonate and other compounds of lead being detected. Inquiry led to an examination of the pasture grounds in each case, when it was found that the same cause had been in operation in both—viz., that the pastures had been dressed with refuse matters got together in London and sold as manure. In the Hertfordshire case, although the pasture had been dressed as far back as March, large masses of old paint were still to be found lying about among the grass. This was also the case in the other instance, but here the manure had been used very shortly before the animals were turned out. Not only the scraping out of paint pots, but every kind of rubbish which goes to make up a London dustman's collection was to be found in the field.—The Veterinarian for August.

SHORT-HORN SALES.—During the interval from July 24th to August 8th, there were reported in the Country Gentleman the following public sales of Short-horn cattle from what is known as the Blue Grass region of Kentucky:—

Table with 4 columns: No. Sold, Breeder's Name, Average, Aggregate. Rows include G. M. Bedford, Hampton Estate, Van Meter herd, James Hall, R. H. Bryant, Hughes & Richardson, E. G. Bedford, Walter Handy, J. E. Sudduth, Messrs. Richmond.

PROVINCIAL EXHIBITION.—The London Advertiser says: The state of affairs on the Palace grounds indicate that the Local Committee are pushing forward with all possible speed the preparations for the approaching Provincial Exhibition, to be held in this city towards the close of next month. The addition to the Horticultural shed has been finished, and one hundred additional horse stalls are rapidly approaching completion, and the number is on the sites of the new mechanical shed and herd pens. There seems to be a spirit of energy about the local officials which the Association managers would do well to imitate.

English Short-horn Sales.

The week upon which we have entered is big with an event eagerly anticipated by lovers of Short-horns for many months past. The cattle to be offered at Gaddesby, on Thursday next, present a most attractive combination of high rank, in some instances the highest rank in fashion, with personal properties of a very high order of merit.

Low condition of the stock, and a downpour of rain all day, did not prevent Mr. Thornton from having a good sale of Mr. R. B. Hetherington's herd at Park Head, on Thursday last. The company numbered, according to different estimates, from 800 to 1000. Mr. J. E. Foster, of Kildow, occupied the chair at the luncheon. Bidding was brisk and business-like.

CAMBRIDGESHIRE AND ISLE OF ELY AGRICULTURAL SOCIETY—MEETING AT CHATFIELD. The show was not to be compared with that which was held on the Leys, at Cambridge, in 1872, excepting the cart-horse section, which was a superior one.

The annual sale of Cotswold Rams belonging to Mr. Robert Garm, Abbsworth, Northwick, took place as advertised, July 25th. Mr. Garm kindly writes us the result as follows: "54 yearling sheep were offered, which realized £1,566 2s., or an average of £28 10s. 4d. each.

Breeder and Grazier.

The Breeding and Management of Short-horn Stock.

BY A PRACTICAL MAN (Continued.)

After calving, and when giving milk, cows should be well fed. If on inferior grass, 2 lbs. of linseed cake per day should be given when cows are brought in to be milked, and if any of them are poor, double the allowance of linseed cake, and give a quart of oatmeal with hay-chaff.

So many persons have written on the treatment of cows when in labor, and after calving, that I cannot add to the mass of information on this subject; but I may be allowed to say, that if the case appears favorable, and the presentation natural, the cow should be left to herself in the field if the weather is dry and fine, but not in the hot sun.

The study of writings on the treatment of cows at this time is of little avail, unless the habits of the cows themselves are investigated. Some cows invariably have long and painful labors, others calve quickly and easily, and the owner of a herd of cows, by practical application, will gain additional information from each case.

It is desirable to keep the cows daily cleansed from dirt, without rubbing off the hair. Cows can be cleaned at a trifling expense when they are kept in yards, as they then can be kept and clean themselves. Their feet occasionally require paring and trimming, which can be readily done when the cow lies down.

age, when wanted to be milked; refuses to give her milk; and allows no one to approach her when in the field; whereas the cow which is kindly treated is very quiet and docile, and can be "handled" at any time.

I do not think that cows are affected by the season, so far as weather is concerned, in holding to the soil. A sudden change from mild or warm weather to excessive cold and wet, within 24 hours after the cow has been milked would, doubtless, have a great tendency to prevent conception, as the blood of the animal would experience a sudden chill, which is opposed to the ordinary order of conception.

Cows cease to breed at different ages; many fail after producing one, two, or three calves, whilst others breed regularly to fifteen years and upwards. A reference to the 11th vol. of "Coate's Herd Book" affords strong evidence of the advantage of putting heifers to the bull before they are two years old.

To those breeders who prefer a cow-house, or who wish to see their animals conveniently under one roof, I would recommend an inspection of Her Majesty's cow-house, at the Dairy Farm, Windsor. This splendid building, which is 122 feet long, 38 feet wide, and about 4 feet high, is erected with a span roof, under the centre of which is a raised platform, 6 feet 6 inches wide, paved with flag stones.

In passing the visitor to this "Royal cow-house" will find the homesteads at the Dairy Farm and at Shaw Farm, Windsor, well worth his inspection, as they are substantially but plainly built, and possess many conveniences which are not ordinarily met with.

As evidence of the value of exercise to cows near esterne, I am informed that from about 1830 to 1840 Mr. George Lyon flourished in Yorkshire, who purchased great numbers of cows for London dairy-men. Mr. Lyon usually selected the largest and finest cows, many of them being very fresh.

Some cows are subject to falling down of the vagina or first passage, the cause and treatment are thus described by Skellett: "This is a complaint which, in cases of weakness, both precedes and follows calving, the womb and calf's head pressing upon the passage, make the latter fall down, which it does to a certain extent. Before calving little can be done to remedy it; but when it appears after it, it admits of a certain method of cure.

in their situation a stitch or two should be passed through the sides of the shape, by means of a packing needle threaded with common tape. The parts are to be embrocated with a decoction of bark with alum, and everything done to strengthen the general habit of the animal; for, as soon as the cow is in health and vigor, this displacement wears off. Before calving the appearance of this complaint generally alarms those who have the management of cows, and they conceive that the womb will be entirely protruded, it is only necessary here to keep the animal in a position least favorable for the descent, and to give a stitch in the manner directed, which will prevent the protrusion going farther, till the operation of calving commences, when the parts are generally retracted, or go up of themselves."

Without expressing an opinion respecting the treatment recommended by Skellett, I quote from his work in the absence of better information. The science and skill of our modern veterinary professors may materially improve on the practitioners of 25 years ago.

For calves of this kind an inclined platform is necessary, so that the cow's hind quarters shall be raised from nine to twelve inches higher than her fore quarters. The cow should be tied up, and lie on sparrow beards well littered, under which should be stones or lint for her water to pass through, with good drainage underneath, as the confinement consequent to this state renders cleanliness very necessary to the cow. The ascent to the platform must be gradual, and the cow can be led out to exercise as circumstances permit. For the satisfaction of those breeders who have cows in this condition, I may say that one of the most valuable breeding cows in England is thus afflicted; that she is constantly kept on a raised platform; safely produced a live bull calf in the autumn of 1857, is again with calf, and looks healthy and well.

Although I do not advise the frequent use of bulling stocks, they are occasionally required, and are a necessary adjunct to a breeder's premises. A minute description of the stocks would needlessly lengthen this paper, but any one desirous of having them constructed can readily inspect them on the premises of most of our established breeders.

A cattle van will be found of essential service to remove stock in times of difficulty. Such may arise from accidental lameness, the slippery state of the road, or the distance from a railway station, &c. The van should have a let-down flap at either end, so that the animal may walk in at one end and out at the other, on removing the horse. If a cow heavy with calf has to be "backed" out of the van, she may be much frightened, and endanger the safety of herself and calf.

In the management of a herd of short-horns much depends upon the cowman, who must be an early riser, quick, industrious, good tempered, and clean in his person and habits. He must also be able to control and direct the young men who are under him, and check the least exhibition of temper or violence towards the stock. The cowman should be accustomed to keep a bulling book, to check against the master or bullif; and to report accidents or doubtful symptoms to his master without delay. He must be able to bleed cattle, and have the necessary instruments at hand, in case of need; to keep a reserve of drinks for cows, and diarrhoea powders for calves; and watch the progress and changes of the down-calvers with the greatest vigilance. I need scarcely say that the cowman should reside on the premises; that he should always be at his post; and that he should have a man within call at night, to assist him in taking a calf from a cow, if requisite, as favorable cases frequently need the services of two men. He should also be instructed in the use of the probang, in case a cow is checked; and of the trochar, in case she is blown; as either accident requires a prompt remedy, and the animal may be dead before other assistance can be obtained. A cowman's place is confining and anxious, though not laborious; and a good man deserves a master's encouragement.

We must now speak of bulls, the treatment best adapted to render them healthy and strong, and the condition they should be kept in for stock purposes.

I consider it very important the bull-calf should have an ample supply of new milk twice a day until he is 5 months old, and if the calf has plenty of milk he will require little other food. When a month old the calf may have some sweet hay to pull at, which will induce him to ruminate; and when four months old, in addition to hay, a small quantity of linseed-cake and a few slices of turnip may be given daily. Should the supply of milk run short, the linseed-cake can be increased, and a little oatmeal given, mixed with hay chaff. The food must all be of the best quality, and the milk pure, if the calf has less of it. Much watery drink and indifferent food have a tendency to weaken the organs of digestion, and to create a big belly, which is very objectionable in bull calves. The

young bull should lie loose, in a roomy and airy shed, but well littered, and at the age of four months he should be accustomed to the use of a halter or headstall, be occasionally led round a paddock, at other times tied up for an hour, and every means taken to render him docile and tractable. As the bull increases in strength he should be exercised daily, and treated with the greatest kindness and carefulness. After eight months the calf may be gradually weaned from milk, by substituting linseed-tea; and a peck of sliced turnips or wurtzel may be given it daily, with 3lbs. linseed-cake, and a quart of oatmeal mixed with hay chaff. When between ten and twelve months old, the young bull should have a ring put in his nose. I prefer copper rings, which are made of three sizes, and are to be obtained in many parts of Yorkshire at 30s. per dozen. The nostril is usually pierced with a hot iron, or cut with a stamp nose-punch, and the ring rivetted. The nostril will require rubbing with fresh lard for several days afterwards, and the bull should not be led by the ring until the wound is completely healed. Bull calves which are not desired for getting stock, should be castrated at a month old, when the operation can be safely performed.

A young bull will serve a heifer, and get her with calf, when he is ten months old; but it is better not to work him until he is a year old, when the bull may be moderately used to small heifers, without fear of straining his loins or checking his growth. Bull calves are frequently allowed to run in the fields with a "nurse" cow, and suck her at will, gradually weaning themselves. Cases are known where such calves at eight months old, have bulled their "nurse," and got her with calf. Care must be taken that the first heifers put to the bull are not too wide across the hips, and he should be brought out on an empty stomach, and have a good sight of the heifer before he is suffered to jump her. A fair commencement with a young bull is of much importance, as subsequent trouble is thereby avoided. If a heifer will stand quietly in the yard for the bull to serve her, it is far preferable to putting her into the stocks. One thorough jump is sufficient; and if the heifer passes six weeks without coming into season, it may be presumed that the bull has "stopped her." A bull is often suffered to run with cows in the field, and is driven to and from the homestead with them. There is no better plan of keeping and using a bull than this, and he is more likely to get the cows with calf, and continue to work, than under any other treatment. A pailful of boiled barley given to the bull once or twice daily, when he comes in with the cows, will be found beneficial. If the barley is well boiled, and diluted with a little water, the bull will drink it all. When a bull runs out, it is advisable to strap a board over his eyes, which will prevent him from destroying trees or fences, and render him less dangerous to human beings in the event of his turning savage. From my knowledge of the effects of peas and beans as food for young bulls, I strongly object to their use, *excepting in very limited quantities*, being convinced that many valuable animals are irreparably injured by the immoderate use of such food. A bull in full work should be well, but not extravagantly fed. In the winter, one bushel of swedes, given at twice, 3 or 4 lbs. of linseed-cake, with hay or cut chaff, daily, will keep a bull in good working order. If a bull is having five or six cows a week, he will neither get lazy nor fat on this food; but if he has only one or two cows a week, he will not require linseed-cake. Barley-water is strongly recommended for drink when a bull is being worked hard. A bull must, in fact, be fed according to his work, and his nature and disposition must be studied; as one will not serve cows if he is poor, another will not serve if he is fresh, and a third will cease to work if he has not a good and regular supply of cows. I have used a bull which was fed simply on barley-straw and half a bushel of cut swedes daily. On this diet he would serve a cow a day, and stop them; but double his allowance of swedes, and give him 3 or 4 lbs. of linseed-cake daily, with hay, and he would soon cease to serve. Another bull, apparently short of stamina, would not serve at all on low diet, but stopped his cows when he was allowed 4 lbs. linseed-cake daily, with swedes and hay. It sometimes happens that a bull which is ready and active at serving cows, and apparently labors under no defect, will not get the cows with calf. I have never been so unfortunate as to use a bull of this description; but I know gentlemen who have, and who could in no way account for the bull's incompetency. When breeders have only one working bull, it is extremely mortifying to find him so worthless, as a whole herd of cows may lose a season before it is clearly ascertained where the fault lies.

Bulls cease to work at different ages. Many fail to serve at five and six years, whilst others work satisfactorily until ten or twelve years old. Mr. Bates'

"Belvedere" served well and got calves until sixteen. Mr. Henry Smith, of Drax Abbey, used "Pilgrim" (4701), and "Captain Shaftoe" (6833), until each of them were thirteen years old; and I have Mr. Smith's authority for saying that the late calves by these bulls were quite equal to the early ones. Mr. Richard Booth's "Baron Warlaby," calved in May, 1845, I believe was serving cows in 1855; and in "Vanguard," calved in April, 1847, was in 1855 (lost) on hire at a great sum, and worked well. I have proved, and my opinion is confirmed by the most experienced breeders, that a bull in full vigor and health will serve six cows a week, and is quite as likely to get all of them with calf as if he only served one cow a week.

In-and-in breeding is considered detrimental to the working of bulls, and cases are cited where bulls closely bred have proved slow and bad servers. Yet we must be cautious how we pronounce a strong condemnation against close breeding. We all know how nearly the late Mr. Bates' short-horns were allied, the daughter being sometimes bulled by her sire, the dam by her own son, and so on. Yet Mr. Bates' blood, at several subsequent sales, realized enormous prices; and the best strains of his stock are still eagerly contended for.

The herd of Mr. Booth, of Warlaby, is a remarkable example of breeding from the same stock for a long period, the bull Exquisite (8018), from the Wisc-ton sale in 1846, being the only animal introduced for a "cross" for many years. Yet this celebrated breeder not only exhibited the "best short-horn cow," and the "best yearling heifer," at our Chester Show of the Royal Agricultural Society, but his bulls are so eagerly sought after that he is unable to keep pace with the demand for them. The enormous sums of 100, 200, and even 250 guineas per annum are paid him for the hire of a bull; his calves are bespoken while they are yet sucking; and his income from the letting out of bulls alone (as none are sold) is equal to that of most of our country squires from their broad acres. His Imperial Majesty the Emperor of France, and His Royal Highness the Prince Consort, each patronized this remarkable herd for a bull; and some of his numerous stock have not been seen by Mr. Booth for ten years, having been moved from one herd to another without returning home.

As it is not my object to call attention to any particular herd of short-horns further than to elucidate my subject, I refrain from pursuing this inquiry, which is, however, full of interest to the breeders of short-horns.

As the temper of no animal is more uncertain than that of the bull, he should always be approached with caution, but without fear. The same man should attend to him as much as possible; and though the bull should usually lie loose, he should be tied up at certain times, and accustomed to be handled by the master or by strangers, as well as by his attendant. Where it is not convenient for bulls to run out with the cows, exercise should be given them in other ways. A strongly-fenced yard adjoining the bull's shed, into which he can be turned during the day, is very essential; besides which, the bull will be all the better if led out for an hour four or five days in the week. A bull constantly chained up, and not allowed exercise or liberty, is as likely to turn savage as a yard dog similarly treated. From the earliest ages our subject has caused anxiety and enquiry to all who are interested in the breeding of cattle; and Job, in his affliction, alludes to the peculiar prosperity of the wicked,asmuch as "their bull gendereth, and faileth not: their cow calveth, and casteth not her calf." We may safely assume that "high feeding," to which so many of the mischances in breeding are attributed, was but little known or practised in the days of Job, so far as breeding animals were concerned; yet we find the man considered fortunate and prosperous beyond his fellows who possessed a bull which "gendereth and faileth not;" or a cow which "calveth, and casteth not her calf."

I have previously spoken of the value of a good cowman, and of the qualifications he should possess; but an intelligent, vigilant, and watchful master is indispensable in the management of a herd of short-horns. He must have a quick eye, to detect the shortcomings of his men, or the failings in his stock; and he must frequently inspect personally the feeding of calves, milking of cows, management of bulls, the preparation and application of food; and note the effect of different kinds of food on the animals. It is seldom also that a master can go round his premises without seeing wastefulness to be checked, carelessness to be reproved, and temper to be subdued. Violence to bulls should be immediately repressed, as they do not soon forget an injury, and will retaliate when opportunity offers.

Few descriptions of stock require greater forethought and care than a breeding herd of short-horns. As the writer of this article, I may add that I have



devoted much time and thought to the study of these interesting animals, and I am firmly convinced that in this, as in every pursuit where excellence is desired, a man's time and energies must be largely devoted to his business.

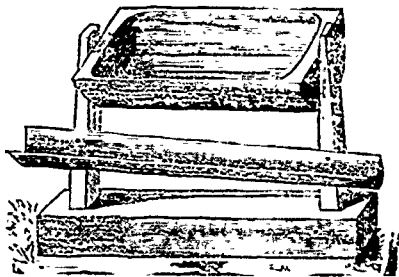
In founding a herd of short-horns, the young breeder should commence with a choice few, and spare no pains in procuring them. Nor must money be a consideration, as the first outlay will be the least, if the selection is good. The pedigree of the cows must be of the first class, and free from alloy. The animals themselves must be as perfect in form, and good in quality as can be brought; and they should be known as regular breeders, or from regular breeding tribes. The best short-horns cannot be purchased, but they can be bred; and any one commencing with five or six superior cows, and using a bull as good as can be found—the blood and quality of which must also be unexceptionable—may, by retaining his heifers, in a few years be the possessor of a splendid herd. "The Breeder's Complete Register of Short-horns, containing Forms of Entry for Registering the Pedigree and Produce of the Herd," by Mr. Torr, and published by Longman & Co., London, will be found fully to answer the purpose of a private herd book. Our national register, known as "Cotte's Herd Book," in 12 vols. 8vo., is published by the proprietor, Mr. Stahord, of Easton-square, London, who receives entries from short-horn breeders at certain times, of which he gives notice, for future publication.

In the foregoing observations I have confined my remarks to the feeding and management of breeding stock in an ordinary and economical manner, consistent with fair conditions. The feeding and treatment of stock for exhibition at the best local and national shows is quite a different matter, and demands care and skill which few persons thoroughly possess, and an outlay and expense which alarms prudent men. When expense is no consideration, other requisites are essential and imperative, that although the competitors are numerous, the winners of prizes are generally a select few, verifying the words of an ancient motto, that—

"Many go out for wool, and come home shorn."

—*Farmers' Magazine.*

Watering Trough.



Place two posts in the ground to support the frame for the trough; hang the trough on rollers. By means of the lever it is tripped up, so as to throw the water into the waste sport. When not in use the trough can be left bottom up to prevent it being filled with snow, sleet, &c.—*Practical Farmer, Vol. 1, p. 114.*

Principles of Breeding.

The *National Live Stock Journal* says:—Scientific investigation and research have established the following propositions as true, in the transmission of hereditary animal characteristics.

1st. Like produces like, or the likeness of some ancestor.

2d. When there is great uniformity among the members of a species, the divergencies of the offspring from the average type are usually small.

3d. When a considerable divergence has once been established, tendencies among the offspring are frequent and great.

4th. Any accidental variation from the established type in the form, disposition or habits of a species, may be perpetuated, and to a limited extent intensified, by careful selection and use.

5th. An unnatural strain of demand on any particular part of the animal machinery, long continued, tends to weaken or dwarf all the other parts not allied to the one so stimulated.

6th. Hereditary qualities are liable to be weakened, if not entirely lost, by disuse.

Poultry Yard.

Hints to Poultry Exhibitors.

Continued from page 288.

**POLISH**—Three varieties of this breed are offered prizes, White Crested Black, and Gold and Silver Spangled Polish. The crest-feathers of the Silver Spangled Polish cock should be black at roots, white in middle, and spotted with black at tips, (in old birds white feathers mingled); hackle white, spotted with black at tips; back shoulder coverts and wing-row, white spotted with black, similar to but broader than hackle and saddle-feathers; wing coverts white, laced all round with black, the lacing broader or thicker at the ends of feathers, forming two symmetrically laced bars across the wings; secondary quills finely laced all round, the lacing broader at tips, with this exception, the outer web is white, the inner web white with more or less grey or greyish black mingled, but still clearly lighter than the black lacing; primaries very similar to secondaries; saddle-feathers white tipped with black at their bases; breast white, with a heavy crescentic spangle at tips of feathers, often running up the sides so as to form a lacing; tail white or grey, spangled with black at tips of feathers; sickles the same; tail coverts or side-feathers, white with more or less grey in the centre, heavily laced with very resplendent green black. The crest of the Silver Spangled Polish hen should be black, finely laced with white, the first few, afterwards white laced with black, hackle white, laced at tips with black; breast, white spangled with crescentic spangles, running up almost into a lacing, remainder of plumage white, laced entirely round every feather with black even in the secondary quills, the lacing being rather thicker or heavier at tips of the feathers. In both sexes, the eyes bright red, beak dark horn color, face, red, legs, slaty blue.

The Golden Spangled Polish should be similar in all respects in both sexes to Silver Spangled as regards marking, only substituting the golden for the silver ground.

The defects in both the above varieties of the Polish are: Want of size and fulness of crest; presence of more than the merest rudiments of comb, dark breast, wings and tail badly laced, and want of size, symmetry and condition.

The White Crested Black Polish, in both sexes, should have beak black or dark horn color, face and wattles red, deaf ears white, eyes red, crest pure white, with only a few black feathers in the front. Rest of the plumage a deep rich black, legs a very dark slate color, approaching to black. In this variety, the defects are: Want of size and fulness in crest, too much comb, red deaf ear, too much black in crest, or bad white, want of gloss or richness of plumage, want of size, symmetry and condition.

In all varieties of the Polish breed, the following are disqualifications: Distinct two-horned comb, crooked back, wry tail, or any other deformity, presence of foul colored feathers, amputated combs, plucked crests, or any other fraudulent treatment, legs of any color but blue or black, or bluish black.

**HAMBURGHS**—Four varieties of Hamburgs are included in the prize list, Gold and Silver Spangled, and Gold and Silver Pencilled. In the Silver Spangled cock the hackle should be silvery white, free from yellow feathers at bottom spotted as much as possible. On the back, shoulder coverts and wing-bow, the feathers should be white spotted with black. Owing to the pointed shape of the tip of the feathers, the spots will be long and narrow. Each feather of the wing coverts should be white, with a heavy round black spangle at the tip, forming two even bars across the wing. Secondaries, white, spangled at the tips, the spangle forming what is called the stepping of the wing. Primaries, also to be spangled at the ends.

A black spot should appear at each end of the saddle-feathers, the rest white. Breast, under part and thighs, white, spangled with black, every feather having a rich, round, black spangle at the tip, the larger the better, and just arranged as barely to show the white between. The outside of the tail whitish, inside greyish, each feather spangled at the tip. The feathers of the sickles and the secondary sickles, clear white, with a large distinct spangle at the end of each. In the Silver Spangled hen, each feather of the hackle should be silvery white, spotted with black on the end, those towards the bottom becoming larger and rounder. Back, shoulders, saddle, tail coverts, breast, under-parts and thighs, white, each feather tipped with a large round, black moon or spangle, not arranged so close as to overlap and appear solid black, but so that the white can just be seen between. Tail feathers white, with a spangle at the end, which is, however, seldom perfectly round. Wing coverts tipped with very large spangles, so as to form two regular bars across the wing, and secondary quills to be white, tipped with a heavy crescentic spangle, so arranged as to appear like "steps" on the end of the wing when it is closed. Primaries, white, tipped with black. The marking to be as uniform as possible all over the body. In both sexes the beak a dark horn color; comb, face and wattles, a brilliant red, deaf ears, pure white, eyes, hazel, and legs, dark leaden blue. In the Golden Spangled Hamburgs the ground color of the cock should be rich reddish golden bay, the hackle and saddle striped with black, the stripes to be sharp and clear. The feathers of the back, shoulder coverts and wing-bow, should have black spots at their tips. Wing coverts heavily spangled with large round spangles, forming two bars across the wing. The ends of the secondary and primary feathers also spangled on the ends. Breast, under-parts and thighs, heavily spangled with rich round spangles. Tail, rich green black. The hen of the Golden Spangled variety should have a rich reddish golden bay ground color, but in other respects similar to the Silver Spangled, except that the hackle is striped instead of spotted with black, and the tail is black. In both sexes, beak, horn color, comb, face and wattles, brilliant red, deaf ears, pure white, eyes, red, and legs dark leaden blue. The defects in both varieties of the Spangled Hamburgs are: Bad head and comb; bad carriage of tail; stamed deaf ears; deficiency in bars; marking of tail of Silver Spangled spangling too thick so as to appear black, or too thin and small, so as to appear spotted or irregular, or want of clearness in ground, or any other faults of color and marking, and want of general symmetry and condition. The disqualifications are: Single or lopping combs, hen-feathered cocks; actually red deaf ears; absence of bars on wings; legs of any other color but blue or dark leaden blue; wry tails, or any bodily deformity; trimmed combs, or any other fraudulent dyeing, trimming or dressing. In the Silver Pencilled Hamburgs the hackle, back, saddle, shoulder coverts and wing-bow, pure silvery white, lower web of wing coverts, pure white; upper web, heavily pencilled across, the pencilling to extend just at tip across outer web also, so as to form an indistinct and rudimentary bar; secondaries, white on lower web, except a strip of black next the quills, and black on inner web, except a little grey or white on extreme edge; primaries, white on outer web, and black on inner web; Breast, under-parts and thighs, white, except a few black spots behind the thighs. Tail, black in the true feathers; sickle and secondaries, rich glossy, green-black, with a narrow lacing or edging of pure white round. The hackle of the Silver Pencilled hen, silvery white. Remainder of plumage, except wing quills, a pure silvery white ground color, each feather pencilled across with black; the pencilling to be as fine or frequent as possible, to go as straight and squarely across as possible, and to be nearly as possible equal in width to the white spaces left between. The

secondary quills should also be pencilled, and white on the outer webs, with a little undefined marking, is the rule. Tail-feathers should be perfectly pencilled, the pencilling to "fall in line" as if continuous lines had been drawn around the bird as far as possible. In both sexes, the beak horn-color; comb, face and wattles, bright scarlet red; deaf ears, pure white; eyes, bright red; legs, dark leaden blue. In both sexes of the Golden Pencilled varieties, the plumage precisely resembles that of the preceding variety, substituting in the cock a ground color of reddish golden bay, and in the hen a rich gold color, or orange gold, the black marking being similar. The defects in the pencilled varieties are: Bad head and comb; stained deaf ear; tail, not properly marked; hackle, marked or spotted; want of general symmetry and condition. The disqualifications being: Single or lopping combs; hen-feathered cocks; red deaf ears; rusty patch on cock's wing in Silvers, or feathers tipped with white in Gold; legs any other color but blue or leaden blue; wry tails, or any other deformity; trimmed combs, or any other fraudulent dyeing, dressing, or trimming.

(To be continued.)

### Silver Dragons' Bars.

Much has been said as to the proper color of Silver Dragons' bars, much more might be said, but the subject has been pretty well ventilated, so much so, indeed, that the dullest of our fellow fanciers can clearly see through it, and thus solve the problem for themselves; in short, and in fact, the question black bars or brown bars is simply a matter of choice, upon which a difference of tastes might be expected, and whether the matter be decided now by one or twenty fanciers it will still remain an open question, to be left to the discretion and preference of whoever may be selected to make the awards where both the kinds may be antagonists.

In your Journal of June 6th you stated that "Mr. J. Bromley suggests that the Birmingham Columbarian Society should decide as to the color of the bars." We therefore willingly repeat our opinion on the point for the use of those who may value it, and who may have passed unnoticed the number of the Journal in which our views were contained. Our opinion upon the Dragon Pigeon was given at some length in your issue of April 21st, 1870, in which all the acknowledged varieties were referred to, accompanied by a portrait.

The following paragraph we extract from our notes as bearing upon the point at issue: "Silvers are frequently bred from and crossed with Blues, but it is better not to do so, for, as a consequence, too often the produce of such a mixture is a muddle of both, resulting chiefly in the production of birds of a silver color with black bars and dark flights, which are, therefore, not regarded as Silvers, but are looked upon as washed-out Blues. True Silvers may be simply described as follows:—Their color is a sort of whity-brown or very light drab, with darker drab bars, neck, and flights; they should have light horny bills and nails; the hackle is not so beautifully resplendent as in the Blues, the iridescence being greatly diminished by the drab tint of which their color consists. The eyes of this variety partake of a rich pearl kind, without a particle of yellow observable in them. They are a very attractive variety, and good specimens are very scarce, more especially cock birds."

These were our opinions given two years ago after full consideration and mature experience of the breed; but as the subject has lately been freely discussed, and our opinion sought, we have again brought the matter before our members for reconsideration at our last periodical meeting, but the verdict was the same fully confirmed, but this time with many additional voices to proclaim with emphasis the brown or drab bars as the proper and established color for Silver Dragons.

Amongst our members we have many admirers of Dragons, who have made an especial study of them for years, and experience has taught us to prefer in Silvers the brown-barred kind. In fact, until lately, none other were exhibited, simply, perhaps, because there was not a well-matched pair of black-barred to show. Odd ones now and then were bred, but were not regarded as show birds, because to follow precedent brown-barred birds as standard specimens were required.

So-called black-barred Dragons were produced as by accident, and not designedly, and they are about

as numerous now as they were then. It is true we admire both kinds, and probably if we could introduce any other pretty offshoots from those already known and recognized we should also admire them, for were they white bars, red bars, real black bars, or even green bars, they would doubtless attract our attention, command our admiration, and elicit our praise; but we cannot see the wisdom of attempting to revolutionize a settled characteristic by any sudden freaks of fancy to which fanciers are liable.

It is no new thing to produce the so-called black-barred Silvers; but it is quite new, and an entire revolution of things to endeavour to persuade that no others are perfect, and thus ignore the long-known and acknowledged Silvers.

We have, unfortunately, in our category of fancy phrases and names a host of misapplied terms, and those often mislead the amateur Pigeon-keeper, and sometimes ruffle the calmer fancies of the more knowing ones. We are of opinion that such is the chief cause of difference as to Silver Dragons. Silvers! Ah! there's the question, for in reality there's more against that name than either of the kinds in dispute. The name we think is an inappropriate one, answers as well to one as the other, but, in fact, is unsuited to either, though the term Silver has long been used in describing both kinds. Thus, experienced fanciers would know, that in speaking of Silver Dragons, Fantails, Owls, Carriers, or Runts, that the brown-barred kind were meant, because the flights and tail feathers of these kinds must be of the same color, or in accord with the color in body, whilst the Turbit and Baldhead, being white-flighted and white-tailed birds, are understood to have darker or black bars. It therefore seems folly to endeavour to transfer the title from varieties already established to one not yet in existence, even though it were admitted to be better, for although there are (of Silvers) those which more nearly approach black than their fellows, yet the darkest of these are, in truth, far from being black; and the more intense the color of bars for Silvers with colored flight and tail, the more certain is the last named appendage to be of a bluish cast, and the more variegated with green lustre is the neck of the bird likely to be.

Now, we are not opposed to a change when such alteration is advisable or can be supported by well-grounded argument, backed up by precedent or sustained by sound theory; but by the advocates of the black bar all these essentials seem to be forgotten. It is not sufficient for a solitary pair of dark-barred birds to be exhibited, and because they win a few prizes with certain judges that henceforth none other are perfect. This is surely too much to expect, and we cannot help feeling surprise that, in the controversy which has taken place, the names of one or two fanciers have appeared in support of black bars whose experience should have taught them to use more care and thought in advocating a change of fashion which would alienate scores of persons from the ranks of fanciers, who would thus desert the fancy disgust at the needless and ever-changing fancies of gentlemen who have been looked upon as authorities, but who, whilst destroying that confidence in themselves, also would aid in the destruction of the admirable variety of Pigeon by which their reputation was gained, and to which breed the highest praises have been given, and by those, too, who now seek to overthrow the very kind of Pigeon they helped to establish.—*Birmingham Columbarian Society—J. W. Ludlow, Secretary.*

### Chicken Cholera.

The symptoms of this disease, which has during the past few years become quite prevalent in our poultry yards during the hot months, are by no means uniform, and in several instances do not present a clear choleraic character. It is, therefore, of importance for the breeder to thoroughly understand the symptoms, so that if his fowls be attacked he will be able to apply the proper remedy. During the last few years, in the United States, whole yards have been devastated by this disease, and we see several complaints in poultry journals of similar occurrences this year. When attacked by cholera the bird is seized with a sudden and violent thirst, accession of thirst accompanied with diarrhoea, at the first the droppings are of a greenish character, and by degrees becoming thin and whitish, much resembling similar discharges in the human subject. Great weakness also manifests itself, and in some cases cramps supervene. The disease runs its course rapidly, death resulting in most cases in from twelve to thirty-six hours, if not, therefore, taken immediately, the treatment is generally too late. If the following recipe be administered at an early stage of the disease, every three hours, a large percentage of those affected may be cured: "Rhubarb, 5 grains; cayenne pepper, 2 grains, and laudanum, 10 drops.

## The Apiary.

### Bee Notes.—Advice to Beginners.

It is said, and the assertion is pretty well sustained, that a queen bee, when everything is favorable, will deposit, on an average, 3,000 eggs every 24 hours. A good swarm of bees consists of some 20,000. If the eggs that a queen will lay were all cared for until hatched into bees, we can easily see that every 10 days will at this rate furnish a large swarm. We can also see that every day a properly situated colony is without a fertile queen there must be a great lack in the increase. As many proportionally die in such a stock as in one that is maturing bees, enough bees to make several swarms die off annually from any thrifty stock. The age of a worker bee is but a few weeks.

A piece of comb an inch square will contain about 50 cells—worker size. A hive of only ordinary size will contain from 60,000 to 80,000 cells. We can all readily see the advantage of having an abundance of comb in suitable condition to receive the eggs that a queen will deposit, and, above all, that there should constantly be a queen depositing eggs. In the natural process of swarming, colonies are without a laying queen for 14 to 18 days. In ordinary artificial swarming about 20 days. A colony that designs throwing off a swarm—to make the time short as possible—will begin preparations several days before hand to provide a successor to the queen that is to leave, and to make a sure thing of it, usually several young queens are reared. When the first cell containing a queen is sealed over, the old queen and most of the bees leave as a swarm. In making an artificial swarm, the old queen is taken with the bees, and the old stock is left destitute the same as in the other case. They do not usually have any queen cells started, and have to begin from the eggs or any young larvae, and it will take them some days longer to mature a queen. When bees, if only a hundred or two, are deprived of their queen and have eggs or young larvae, they will at once commence preparation for one, and it will take them from 10 to 16 days to mature it. In eight days after leaving the cell, when all is favorable, she will begin to lay. But there has been a loss of two or three weeks in egg laying. Every bee-keeper who is disposed to turn the industry of his bees to the best account should begin to rear queens early that they may be ready by the time he has swarms, either natural or artificial, thereby gaining many bees.

I have found it most economical to rear queens in small boxes. Those made on the Langstroth or common movable comb principle will answer as well as any. I use three combs about five inches square, suspended in frames that will go in a box easily. No top or bottom nailed fast. Near the centre of the middle comb cut out a piece near three inches long on the upper side, two inches on the bottom, and a little more than an inch in depth. Now take a comb from a hive that is breeding containing eggs or larvae just hatched from the egg—new comb is best—cut out a piece of the same shape half the depth of the space cut out of the comb, and just long enough to fit in the upper side closely. The bees will wax it fast in a few hours. Near a pint of bees is wanted to rear the queens. If they cannot be had from any place a mile or two away they may be taken from a hive at home by taking young bees. Young bees are best. Obtain them by taking two or three combs without the queen in the middle of the day from a hive from which an abundant brood is hatching—you have movable combs of course—and put them into an empty hive or box a few feet from the old stand. In an hour or two the older bees will return to the hive. The bees that remain may be brushed into an empty box and shut up. Now set the box prepared for rearing queens over it, and let the bees creep through a hole left for the purpose up into it. Finding the brood they at once commence enlarging one or more of the worker cells into such as are required for raising a queen. If very warm give a little water in a sponge. They may be allowed to fly out in 48 hours.

If there is no honey in the combs, they should be fed a little while shut up, as well as afterwards, unless they can obtain it from the flowers. On the tenth day, if they finish more than one cell, the super-

numeraries may be cut out carefully, if situated so that they can be without mutilation, and given to another little box of bees prepared in the same way except that the cell is put in instead of brood. If more than one cell is left, the first queen that hatches makes it her business within a few hours to destroy all rivals. She bites a hole in the side of the cell, and thrusts her sting into the most vulnerable part of her calmly resting sister, which in a few minutes proves fatal. The queen when rid of all rivals will fly out to meet the drone in about six days; if successful, will begin to lay in about two days more. The eggs may be seen in the bottom of the cell. She is now ready to introduce into the full colony that is queenless; but can remain in the little box several days if none are ready to receive her. The old hive having swarmed, the new colony should be put on the stand of the old one, that being moved a rod or more to a new stand. All the old bees return to their old place in a day or two. Upon the old hive and cut out all the queen-cells. Take the mature laying queen from the little box, and if you want to be absolutely certain that she will never lead off a swarm to the woods, cut off one wing to prevent her flying ever afterwards. With some honey in a spoon smear her completely. Turn her over a few times with a feather, or something that will not harm her, and then drop her among the bees at the top of the hive, who will clean her off the first thing, and accept her as mother. Prof. Agassiz is reported to have said in a lecture given at Cambridge recently, that the young queen matures and endeavors to force her way out of the cell, and is kept back by the bees, before the first swarm with the old queen leaves. Those who have full confidence in his statement will doubt the propriety of introducing a queen to the old hive as I have directed. But I will assert, without fear of contradiction from anyone fully acquainted with the subject, that not one first swarm in fifty, or even five hundred, will issue under such circumstances. Erroneous teaching leads to erroneous practice.

Artificial swarms can be made, if their condition is right, later in the season. To make one, do it, if you can, in the middle of the day. Lift out combs carefully, and find the one the queen is on. Put that, with the bees on it, into the new hive with frames, and set that on the old stand, and remove the old one away as before. Two days after introduce the fertile queen, as in the other case, without taking the trouble to cut out cells. Two days is all the time that is lost in brooding. There are bees enough always left in a good stock to nurse the brood. In a few days, or weeks at most, they are as strong as the old colony was. By making swarms artificially, and introducing fertile queens this way, five or six strong colonies may be secured in one season, providing the yield of honey is good. All should be kept strong. If the old queen could have empty combs instead of empty frames it would facilitate operations greatly. If the flowers do not yield honey plentifully, they should be judiciously fed, especially toward the last of the season. More about feeding next month. With the movable frames it is, in a measure, optional with the bee-keeper whether he has increase of bees mostly or surplus of honey. We can not have both largely, any more than we can have plenty of eggs when huddly is hatching a brood of chickens. If the energies of the bees be devoted to the increase, and providing their stores for winter, they cannot get much surplus. We can choose that which we want most, or divide the product and have a moderate increase and some surplus; that is if the season is favorable like the present up to July.

#### Foul Brood

For the past few years we have been exempt from foul brood in this vicinity, yet I would recommend an examination of every old stock, and if it is found in any—it is fully described in "*Bee-Keeping Explained*," page 216—take out the bees and put them into an empty hive like a new swarm at once, and suffer none of the contents of the old hive to be taken with them. If the honey they have in the old hive be needed for winter stores, it should be thoroughly scalded and skimmed, to destroy whatever poison it may contain, before feeding it.

Surplus boxes taken off this month and next on account of greater scarcity will be likely to need more care to prevent bees taking out the honey and carrying it back to the hive. If the quantity is not much, the boxes may be set into any empty barrel, right side up if possible, in a manner that the bees may get out of them. If turned on one side, have all the sheets of comb vertical. Throw a thin sheet or cloth over the barrel, to prevent outside bees from getting in. Those on the inside will creep to the underside to get out. Take off the sheet and shake off the bees a few times, returning it quickly to prevent others getting in. When honey in the flowers falls greatly, as it does in many sections this month, the bees will begin to

take it out of the boxes on the hives. That in the unsealed cells will be carried down. Close watch is needed to save it. In sections where buckwheat honey is obtained, it is generally stored this month, and boxes part full of clover will be finished out with the darker honey, and appear like all of that quality. If not wanted mixed, take off the clover boxes early. Clover honey sells much the best.

#### A Swarm in a Hollow Tree.

E. W. Taylor writes: "On the 25th of May, a swarm of my neighbor's bees came over near my house and went into the hollow of a large chestnut-tree. It will be next to impossible to get them by cutting the tree. They are in one of the largest branches. The tree is easy of ascent, and branches near the hollow. A bee-hive could be placed near the hole with but little trouble, if they could be induced to come into it. If there was any way to make them swarm, the hole could be stopped, and they might be hived easily. It is a very nice, large swarm. They are not wild. If you will tell me how to get them, I shall consider it a favor."

*Reply*—I get such inquiries frequently. An answer to this one will apply to many others. The instincts of bees should be understood. Bees, after they get combs made and occupied with brood, never voluntarily leave a tenement that will possibly answer, even for one much more commodious. They never desert it as long as healthy. If this were understood it would save much idle speculation, and sometimes money. A year ago we sold a lady a stock of bees in the improved hives. They were lost in the winter. She added another in the spring. To save the expense of a hive she was advised to take only combs, frames and bees, sent in a rough box, and transfer to her empty hive. It could have been done in five minutes. But the operator, probably, had never read the directions for transferring, or had any experience in avoiding stings. The bees were received in good order. Her manager not understanding the above mentioned principles or instinct, and supposing that the brood sealed up in the combs was of more value than all else sent, thought if he opened the box that contained the bees, that they would go right into the offered hive of their own accord and abandon all. They did not go. They were then dumped into a hive in bulk—hurriedly, I suppose for fear of stings—all the combs were broken and spoiled but two combs, and they were bottom up. The mature bees were nearly all destroyed. I attended and set matters to rights. They had the queen yet, and may recover by fall, yet there will be a loss of at least \$25 for this season, if the yield of honey should continue as it has commenced. This is in consequence of not understanding principles.

The men with the swarm in the chestnut tree can not expect the bees to come out voluntarily any more than they went to the hive from the rough box. They have brood in a week after they are located. The bees can be got out of the tree only by force. An important question to consider is, will it pay? Are they worth anything as they are in the tree? How much would it cost to get them out? It might, perhaps, take a man all day. How much will they be worth in a good hive? If worth nothing in the tree, and \$15 or \$20 in the hive, will the difference in value pay for the trouble? The value in any case will depend greatly on the yield of honey after they are out. In estimating the expense, it would be well to consider the necessity of obtaining the assistance of a skilled mechanic, and one who has had some experience with bees, that he may work without constant fear of stings. They must be transferred, brood and combs. The tree may be left standing, it is best. A scaffold can be made in the place where a hive can be placed with little trouble, on which a man may work to make the examination. The best thing to do is to ascertain which side of the cavity the shell is thickest, and its extent up and down the tree. With a brace and bit, or auger, bore a few inch holes through the shell to ascertain the extent of the cavity. Make two rows of holes close together at the top and bottom of the cavity, across the body of the tree. With mallet and chisel split out the piece between the holes; or if the grain of the wood will not allow of its splitting, bore another row of holes up and down, and the slab can be readily taken out, exposing the whole surface of the combs. The bees by this time will not be disposed to sting, and the work may progress without fear. The combs will probably be new and tender. Those which are filled with honey only may be cut from the others and saved for the table. Those containing brood must be put into frames and held just as described in transferring in the May number of the *Agriculturist*. If the weather is warm—it ought to be—the combs will be very soft, and care will be needed to keep them straight. They may be laid on a board and brought to the ground and fitted in the frames. When all is arranged, set

the hive as near as possible to the entrance in the tree and put in the frames. Probably the bees will have crept off the combs upward as soon as the work commenced, and will be in a cluster not far off, either out or inside. They can be dipped into the hive as easily as so much sawdust. When the queen is once in, the bees will follow without fail in the course of a few hours. Shut the hive and leave it until cold weather.—M. Quinby, in *American Agriculturist*.

## Poetry.

### The Forty-Acre Farm.

BY JOHN B. VATES.

'Tis thim'in', wife, of neighbor Jones, that man with staidest arm—

He lives in peace and plenty on a forty-acre farm;  
While men are all around us, with hands and hearts as sore,  
Who own two hundred acres, and stultare wanting more.

His is a pretty little farm; a pretty little house;  
He has a loving little wife as quiet as a mouse;  
His children play around the door—their father's life to charm—  
Looking as neat and tidy as the tidy little farm.

No weeds are in the corn-fields, no thistles in the oats,  
The horses show good keeping by their fine and glossy coats;  
The cows within the meadows, resting 'neath the beechen shade,  
Learn all their gentle manners of the gentle milking-maid.

Within the field—on Saturday—he leaves no cradled grain  
To be gathered on the morrow for fear of coming rain;  
He keeps the Sabbath holy—his children learn his ways—  
And plenty fills his barn and bin after the harvest days.

He never has a law-suit to take him to the town,  
For the very simple reason, there are no fine fences down;  
The bar-room in the village does not have for him a chair;  
I can always find my neighbor on his forty-acre farm.

His acres are so very few, he ploughs them very deep;  
'Tis his own hands that turn the soil—'tis his own hands that reap;

He has a place for everything, and things are in their place;  
The sunshine smiles upon his fields and contentment in his face.

May we not learn a lesson, wife, from prudent neighbor Jones,  
And not—for what we haven't got—give vent to sighs and moans?  
The rich ain't always happy, nor free from life's alarms;  
But best are they who live content, though small may be their farms.

—*Live Stock, Farm and Fireside Journal.*

## Miscellaneous.

### Shall Our Boys Stay on the Farm?

Neighbor B. called in the other evening to read the *Country Gentleman* as usual, but his heart was ill at ease because his Joe had taken the western fever, and was determined to seek a new home in Colorado, and again and again he laid aside the newspaper, which ever interests him so much, to talk the matter over, always praising his remarks with the words:

"Well! well! its no use a talkin'—but bless me, I can't see what this country's comin' to!"

I do not wonder that a hearty, ambitious young man, who possesses a good share of idealism, and has spent a great many of his boyish hours in dreaming of the things he will accomplish, should feel a little dissatisfied with a life of drudgery such as Mr B. has always lived. The narrow round of duties, from the early feeding of the stock to the late finishing of the day's work, has little ennobling effect on the characters of those who make farming the chief business of their life, and year after year continue the monotonous toil. Indeed, there is no regular daily occupation which does not become irksome, and require a change of scene and air once in a while, to make us comprehend how beneficial it is for us all to have a play-spell. I here is no truer maxim than the one which tells us that "all work and no play makes Jack a dull boy."

Visions of wealth, luxury and ease, of good food and fine clothing, fill the head of every boy, whether he feeds stock in his father's barn-yard, or stands behind the counter and deals out yards of calico and tape, and pounds of tea, coffee, flour, and sugar.

"Out West" is considered the goal of every young man's ambition, the *El Dorado* in which he can fill his pockets with gold, build for himself a stately mansion upon whose broad piazza he will recline in his easy chair, smoke his pipe, and read his daily newspaper, while his steeds and herds roam over his wide fields, and hired hands supply their wants, and also minister to his own desires and those of his family. This is a charming picture to contemplate, and it only needs to be framed in gold to be produced in reality. But, alas! gold does not come at one's bidding, and is not gained by simply wishing for it.

No, indeed! The deserted gold mines of Colorado tell a sad tale of the fate of those who sought for the precious metal among the quartz and mica rocks of that land. Gold is dug out of the bowels of the

earth at the cost of men's lives, and it is gained in the traffic of life at the cost of muscles and flesh—ah! even of honor. Riches are now at a fearful price, and if gained are frequently purchased at the expense of happiness and comfort.

"Can gold calm passion, or make reason shine?  
Can we dig peace or wisdom from the mine?  
Wisdom to gold prefer; for 'tis much less  
To make our fortune than our happiness."

I need not try, however, to make Joe B. contented with his lot and his poverty, until he has tried something else—he has travelled out West, and seen how they live there, and learned from the actual settlers of their trials, privations, troubles and bitter homesickness for the dear old home.

To be sure, they were not contented while there, and they sighed for fairer skies and purer airs, and for a wider view. All this the prairies could give them, but oh! how they did shiver and crawl in every fibre of their flesh when the shrill winds howled like wild beasts around their log huts, and drove the smoke down their chimneys, and no relishing food could be obtained—nothing but "hog and hominy" and black coffee; and there was no decent bed for them to sleep upon, and it seemed as if the longing for home would really kill them.

Let Joe B. ask the migrant to tell his story, and tell it *verbatim et literaliter*. He must not go to the land agent or speculator to receive information; neither must he ask it of the German, Swedish or Norwegian emigrant, but let him seek for it from a settler from New England or the Middle States, who left a comfortable home, a large farm well stocked with horses, cattle, and all farming necessaries, to seek riches in the western prairies, which he has never found.

"There's no use talking!" exclaims Neighbor B.; "when I was a boy, it was thought to be a religious duty for one of the sons of the family to live with the old folks, as I then take the homestead when he had laid them in the grave. If a son didn't do this—didn't stay at the old home—he was worse than a vagrant; no one respected him. My father staid with his father; his father staid with my great-grandfather, and so on. A hundred and twenty years has my old line seen the children, grandchildren, and great-grandchildren under its roof; all living there, and now how is it? Why, can't Joe stay with the old folks. What can possess him?"

And the old man laid down the *Country Gentleman*, and taking off his spectacles, drew his hand across his eyes to conceal the drops that stood in them, and blew his nose most sonorously.

Would it have done any good if I had told Neighbor B. a few plain truths? I cannot tell, but at any rate I will tell them to him through the columns of his favorite paper.

Joe has rights as well as his father, and those rights are to be respected. From his mother he obtained more intellectual ability than his father possesses. He has a head which can contain ideas. He delights in fine cattle and horses; desires the new improvements of the day; and wishes to raise premium fruits and vegetables. Let him have an interest in the farm, neighbor, and not merely so much per month. You do not wish to place your son on the level of a farm hand—you need him for a friend, a companion, the support of your old age; and to secure this you must encourage him to feel an interest in everything connected with the place. You must attach him by the strongest interest and affection to the old farm. It is not too late to begin now. To be sure, he is 24 years old, and wants to be his own master. Let him be so; and if he fancies pretty Mary White, who sits in the singing seat with him, don't scowl like a thunder cloud every time her name is mentioned, or that you know he is spending the evening with her.

No, no—don't drive Joe to find a new home out west; but tell him that he shall have a certain percentage on all the crops; shall have the new stock, and its increase shall be his—shall be allowed to plant orchards and strawberry beds, grapevines, and even flowers if he will. And when pretty Mary White will name the happy day, see that a few rooms in the great old house shall be set off for a cosy nest for the young pair.

I would not ask you to take the young couple home, for every married pair should have their own home. It never is well for old and young to try to conform to each other. The young bride cannot adapt her ways to those of the old mother, and harmony can never exist. Give them a separate outfit, Neighbor B.—their own table, cooking stove and litchen appurtenances—have nothing but the wood pile and well of water and ice house in common, and then you will all be happy, and when the grand-children come, they will renew your youth.

If farmers would but study their sons' tastes, and strive to make them take an interest in farming when

they are twelve or fourteen years old, first by taking agricultural newspapers, and then by giving them stock and land of their own! A calf, a colt, a sheep, given to a twelve-year old boy, is one of the best investments a father can make, because it gives that child an idea of ownership; and a plot of ground where he can raise strawberries, melons, or anything he pleases, attaches his heart to the soil.

Teach your boys to plant, prune, graft, bud, and carry to market all the fruits your climate can raise, and at the same time let them eat all they desire of it, and you will not hear of their going out west when of age. The old homestead will be the cynosure of their eyes, and their hearts will be entwined with the roots of every tree in the orchard, and they will love the horses and cows as their dearest friends.

You must satisfy the longing of your boys before you can force them to accept the drudgery and toil of farming. You must show them the elements of success in farming, and that it can be made to pay well—quite as well as store-keeping and the like—before you can convince them that a farmer's life is the happiest under the sun; for—

"Labor is rest from the sorrows that greet us:  
Rest from all petty vexations that raze us,  
Rest from sin-promptings that ever entreat us,  
Rest from world-eyes that lure us to ill.

*Deasy D. Wright.*

#### The Site for Farm Buildings.

In the past, he who entered farm-life expected to be more or less an isolated being. Society had no charms for him. He was in most respects a world unto himself. How to make the most money out of his land was the beginning and the ending of all his hopes, and to this object all his arrangements turned. In selecting a site for his dwelling-house and farm-buildings it was therefore a point to get as near the centre of his plot of ground as possible. Of course the contour of the surface, contiguity of water, and other conveniences had to have a voice in the decision, but if these voted for the middle of the tract it was all the more comforting. Every field required attention, and the centre of the whole economized time and space in getting from part to part of the whole concern.

But times have changed. Agricultural intelligence has advanced more than would have been dreamed of a generation ago. The newspaper is now as much a part of farm-life as it is of city life, and we live as much for mental pleasure as for the hogs and cattle, and potatoes and corn which our broad acres yield. Social life as well as material wealth is an agricultural want, and must be kept in view in locating buildings as much so as any of the mere conveniences before named.

Another point is that there is not now the same necessity for as much manual labor on the farm as formerly. Machinery now does most of the labor, and the mere saving of manual labor has already been in a measure accomplished. Altogether it is not a matter of serious consequence on what part of the ground the buildings are located.

This gives us much more chance to entertain the social elements in farm-life, and there is no reason why in locating buildings the spot chosen might not be especially in view to its contiguity to a neighborhood as not. A dozen farms of a hundred acres or more each could be so arranged that the dwellings might all be within gun-shot of one another.

Even though there were some disadvantages from the labor point of view, the nearness to society would generally compensate it. Farmers, as well as other classes, have learned that there are many ways in which they can co-operate to mutual advantage, and this may just as well be borne in mind when arranging the farm-buildings as not.—*Germantown Telegraph.*

Several extensive hog growers, in Henry County, Ill., say that feeding steamed feed is a perfect preventive of hog-cholera, and that no one there this season who has fed steamed feed has lost a hog by the cholera.

Many farmers, for an extra dollar or two, sell their best calves to the butcher and raise such as are not so valuable, and think they gain by the practice; but the few dollars they made, would in many cases have been worth, if the best had been kept, at the milking age of the stock, more than thirty dollars, instead of a dollar or two.

REMARKABLE LAYERS.—Willard S. Wood, Grafton, Mass., reports to the *Massachusetts Ploughman* that he has eight hens one year old, which laid 178 eggs in April and 188 in May. They are part Leghorn and part Brahma. Their feed was corn, oats, scalded meal, sour milk, and broken oyster shells and crockery for grinding the food.

Some horsetooth cornstalks were shown in Rowmanville last week which were twelve feet long.

Once the farmer adopts a system of farming, he starts on the road to success. It matters not that the system is not the best that could be devised, so long as it is a system it is infinitely to be preferred to the hap-hazard practice of many farmers.

SAP FROM YOUNG MAPLES.—It is said that sap from young maple trees can be procured without harming the trunks, by occasionally cutting off a small limb, and hanging a pail in such a position as to catch the sap flowing from the cut. Mr. D. B. Wier of Lacon, Ill., has practised this course with much success. The sap, in quality and quantity, does not differ at all from that which flows from the trunk.

A Nebraska paper describes the advantages of that State in this glowing language:—"Who says farmers cannot get rich in this State? Fifteen years ago a young man came to this State without a dollar in the world. Last week he went out of the State carrying with him the sum of one dollar and thirty-eight cents, the savings of fifteen years of frugal life! Come West, young men, come West!"

THE STRUGGLE FOR LIFE AMONG PLANTS.—Each plant endeavors, almost consciously, to destroy his neighbor, to occupy his ground, to feed upon his nutriment, to devour his substance. There are armies and invasions of grasses, barbarian inroads and extirpations. Every inch of ground is contested by the weeds; the forest is a struggle for precedence; the wars of the roses are a perennial feud. The serene landscape, the stillest woodland, are the moral arena for vegetable and animal conflict.

Last week the first great ram sale of the season was held at Biddenham, near Bedford, when Mr. Strafford, of Euston-Square, offered for public competition between 60 and 70 Oxfordshire Down rams, bred by Mr. Charles Howard. The competition was very spirited, the whole of the rams finding purchasers at an average price of over 15 guineas. Some of the finest of the sheep made double that amount. Many purchases were made for Germany, France, Belgium, and Sweden.

CHARM OF A GARDEN.—It is, indeed, the frequent change, the never-wearing variety, that is the main charm of the garden. You leave home for a little time, and when you return, lo! everything is changed. New colors, new ferns, new perfumes greet you. There are fresh flowers on the stem, fresh fruit on the bough. Few things are more enjoyable than a first walk in one's garden after an absence from home. Few men who are really fond of gardening ever care to be long away from their household gods. It is, indeed, one of the most salutary effects of a love of gardening that one's thoughts seldom turn towards the delights of vagrancy and the charms of strange places.

THE PETERBOROUGH AGRICULTURAL SHOW.—MEETING AT PETERBOROUGH.—The entries were of horses 148; cattle, 41; sheep, 23; pigs, 15; butter, 7; and poultry, 85. The horses were a good show, 22 entering for the best hunter, and as many for the best hackney. The ponies were also very creditable, and there was a good show of hunting colts and of mares with foals, but the cart-horse classes were only tolerably well filled. The best fat ox and cow classes did not fill so well as is desirable, but there was a fair number of bull-calves and cows with calves; while heifers in calf were fairly represented. The sheep classes were short, as they generally are at this show; the Marquis of Exeter's £10 for the best ram, producing only two competitors; and there was also a deficiency in pigs. Barford and Perkins showed a collection of agricultural machines and implements, as did other makers, but the show was nothing like what it had been in former years.—*Farmer's Magazine.*

SALE OF SIR JOSEPH HAWLEY'S BLOOD STOCK, AT MIDDLE PARK.—The stud realized 23,350 guineas. The yearlings (11 in number) fetched 3,330 guineas, or 454 guineas a piece. To this capital average the brothers to Pero, Gomez, and Blue Gown, and Sister to Rosicrucian mainly contributed; and the last named filly the highest figure of 1,700 guineas to Mr. Chaplin. Only two of the stallions were put up. Siderolite and Rosicrucian, owing to Astero d being lame from "seedy toe." Rosicrucian was put in at his reserve price of 5,000 guineas by Mr. Chaplin: there was a pause, when Lord Rosslyn bid 5,500 guineas, and Mr. Chaplin replied with 6,000 guineas. Mr. Blackman then offered 100 guineas on the part of Mr. Gee, and another 100 guineas secured the horse for Mr. Chaplin. Mr. Blenkirron's 31 yearlings realized 3,935 guineas, or an average of 127 guineas; and the stallion Hawthornden 1,000 guineas. Six yearlings bred by Sir Thomas Lennard, made an average of 50 guineas.—*Farmer's Magazine.*

Advertisements.

THE FIFTH ANNUAL SALE OF THOROUGH-BRED SHORT-HORNS, At BOW PARK.

Will take place at noon, on THURSDAY, 18th SEPT'R, 1873, When there will be sold without reserve, 40 Cows & Heifers, and 25 Bulls & Bull Calves, All high-class Animals, with Registered Pedigrees, also a lot of first-class

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GEORGE BROWN, Bradford P. O.

Bow Park, 16th July, 1873.

THE ABOVE SALE IS

POSTPONED UNTIL WEDNESDAY, OCT. 15.

As Papers that have inserted this advertisement will please insert postponement same number of times and call attention to the same.

IMPORTANT SALE OF SHORT-HORN CATTLE AND COTSWOLD SHEEP.

MR. GEO. MILLER, of Woodcut Farm, Markham, Ont., will sell by Public Auction, on Wednesday, the 15th day of October, 25 Short-horns and 150 Cotswold Sheep. For particulars see hand bills. Catalogues will be furnished on application.

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The Fourth Number of VICK'S FLORAL GUIDE for 1873, containing Descriptions of Hyacinths, Tulips, Lilies and other Hardy Bulbs for Fall Planting and Winter Flowering in the House, is now published. 25 cents a copy for the GUIDE a year—200 pages, 600 illustrations. Full Number 5 cents. Address, JAMES VICK, Rochester, N. Y.

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NOTICE TO FARMERS. MANURES FOR SALE.

Lamb's Superphosphate of Lime, \$40 per ton. Half Inch Bone Dust, \$20 per ton. Delivered free of charge at railway stations here. Terms, cash to accompany orders.

PETER R. LAMB & Co., Manufacturers, Toronto.

v-10-4-4f.

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Table listing various agricultural topics and their corresponding page numbers, including 'THE FIELD', 'AGRICULTURAL IMPLEMENTS', 'GRASSES AND FORAGE PLANTS', 'THE DAIRY', 'HORTICULTURE', 'THE FLOWER GARDEN', 'THE FRUIT GARDEN', 'THE VEGETABLE GARDEN', 'ENTOMOLOGY', 'VETERINARY', 'EDITORIAL', 'AGRICULTURAL INTELLIGENCE', 'BREEDER AND GRAZIER', 'POULTRY YARD', 'APIARY DEPARTMENT', and 'MISCELLANEOUS'.

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