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## The Field.

### Economy of Wood Land.

Time was when the wooded part of a farm was considered the least valuable, and was well nigh regarded as of no account until cleared. Now the opposite condition of affairs is fast coming to be accepted as the true state of the case. Partially cleared farms are bought with the timber estimated as a most important item in the purchase account. Bush land is no longer a drug in the market. Most of it is either already within such easy access by railroad, or it is expected soon will be, that proprietors are figuring up the profits of cordwood, and buyers are doing the same. The consumption of wood as fuel by locomotives, makes a steady, enormous drain on our forest resources. Already the price of cordwood in our towns and villages has reached what were city rates five or ten years ago. As wood becomes more scarce, its value will go up, until it reaches the coal standard, and that is likely to be raised, from the large demand, made for it in manufacturing and railroading, and the rapid exhaustion of the English coal-fields.

In view of all this, and of the numerous uses for timber in the various mechanical arts, it is plainly the duty of all who own wood land, to pursue a conservative and careful policy in regard to it. It is no time for waste and reckless destruction of a commodity so useful and valuable. Climatic as well as economical reasons, urge a wise and prudent management of wood land. The country is already so far denuded of trees, that it is unsheltered, liable to droughts, and in many localities, troubled with scarcity of water. In all our older townships, the forest has been cleared too much. The country is too bare. More trees are needed to protect the buildings, to attract the rainfall; to keep the land moist; to screen cattle from the burning rays of the summer sun; and to shade and ornament the highway. Convinced that the wholesale slaughter of our woods and forests has grown into a serious evil, intelligent farmers and others are planting deciduous, evergreen, and fruit trees. In the United States, especially in the prairie regions, legislative encouragement is being given to tree-planting, and agricultural societies are offering premiums for it. This is wise and well, nor is it any too soon for us to be thinking of similar courses in this country. Every land-owner should be compelled by law to plant a row of trees in front of his property, so that in a few years, our highways might be pleasant and shady avenues. There should be a certain proportion of every farm devoted to timber-growing. Competition in shrubbery, and tree-planting should be promoted. Why is this not as legitimate and necessary as competition in stock, or dairy produce?

But we took pen in hand mainly to urge those who have timber in a state of nature to economize it, and

adopt the wisest methods of eking it out, and making it a productive and remunerative part of the farm. Most farmers look upon it as a very trivial advantage, that they can get their firing for nothing but the labor of preparing and hauling it. If they only lived a while where they had to pay from \$4 to \$3 a cord for it, they would view the matter in a different light. One of the heaviest of the burdens laborers and mechanics in towns and cities have to carry, is that of the fuel provision. It is worth while, therefore, to make the best and most of this privilege of country life.

Wood lands should be kept in a neat and orderly state. No brush heaps or fallen timber should be left to rot. All should be cleared up. Firewood should be obtained, and cordwood got, if the timber resources of the farm admit of selling any, on a systematic plan. Bare farms that have been cleared without regard to the necessities of protection and shade, ought to have timber belts left in suitable places. The supply of fuel for the farm house can best be had on a thinning process, picking out dead, sickly or misshapen trees; and converting them into fire-wood. Partially cleared woodland may be turned to good account, if all rubbish be cleared away, and the underbrush kept down, by sowing suitable grasses, and letting stock pasture on it. On a proper system of tillage, it is questionable if any but the bush land should be used for pasture purposes. None of the wood, not even the brush, should be wasted. It is not much labor to make the brush into fagots, tied with willow or blue beech withes, which will be found most welcome for hastily boiling the kettle in summer, or lighting the fire, for that matter, at any time in the year. A spacious woodshed, such as every farmhouse ought to have, will hold in store a good supply of green, dry and brush wood.

We believe that the time has come, not only for doing away with logging and burning, but for dispensing largely with the use of the axe in wood-cutting, thereby preventing all chip-waste, and using horse-power instead of man-power to perform the labor. Wood-sawing machines that do effective work, can be obtained at no great cost. If it will not pay a farmer to keep one for his own use, it certainly will pay for two or three to club together and own one conjointly. Any farmer, however, who owns a horse-power, will find it to his interest to have a sawing-machine. If the logs are hauled up to the house, they may be sawed at odd times as necessity requires, or convenience admits. In winter, when there is good sleighing, the opportunity of laying in a store of logs is the most favorable, and should, without fail, be improved.

### The Attractions of Agriculture.

The curious and indescribable charm which surrounds agriculture, even in the minds of those who know but little of its processes, and still less of its

scientific laws, is remarkable and interesting. This may, undoubtedly, be attributed to the fact that man's love of nature is one of his foremost sentiments—next to his love of kindred and home; and also to the peculiar radiance of all the bright days which dawn upon a farmer's life, and all the cheerful events which surround his occupation. Man's pathway through the world is not always pleasant and easy. Perhaps, as in nature, the darkness of night, and the shadow of the cloud occupy by far the larger portion of passing time, leaving for the sunshine a smaller share, so in human life the weary and heavy hours abound. But while even the sorrows prevail, the memory of the bright and joyous days will remain, and they will cast their cheering rays through all the darkness. There is no such thing in all God's creation as unmitigated gloom. And so around every condition and calling in life, the bright days will gather, the remembrance of which makes life dear to all men. Where then does the sun shine brightest? where do the most delightful associations cluster? where do the sweetest memories throng? Not where man with his artificial ways is supreme; but where he divides his power with nature, and submits to her influence one half his life. The morning may dawn brightly on him who pursues his way to his mill or his office; but with what surpassing radiance it breaks for him, who, in the early sunlight walks a field, and who even in the midst of his toil, feels the sudden, and perhaps momentary sense of awe and inspiration, and freedom, and joy, with which nature fills the souls of all her sons and from which the dullest and most material cannot always escape. A resplendent sunrise over one's native hill—once seen and realized, do you think it is ever forgotten? Never! But all down the long, tiresome journey, even to the close, will that ray of morning beauty stream, and irradiate many an hour, which, but for that God-given picture might be unsupportable in its gloom. The associations, too, of the field and the fireside—how they endear! And as the festal and anniversary days come round, where on all the earth do they mean so much as they do to him, who, gathering his generations about him, points to the fruits of his co-partnership with nature, and traverses those lands which were his father's, and which he intends shall be his son's. It is because the bright days of the farm are the brightest given to man, in all his occupations, that the charms of nature are always recognized, and its fascinations are felt even by the weary farmer, when worn with toil for his land and animals, loves them still, and also by the poet who knows and feels what beauty and truth God has written on the face of earth and sky.

### Objectors to Agriculture:

And yet, triumphant as agriculture is, and will be over the affections of all men, it is by no means successful in subduing their reason and judgment into a true recognition of its power and importance. It requires more defenders than all other occupations beside. The value of a farm all men doubt, and it has become almost the universal and accepted doctrine that agriculture is a failure, and that agricultural regions, in New England at least, are in a hopeless decline. The important relations which agriculture held with the early prosperity and power of our country are forgotten. The fact that even today, but for its abundant and superfluous products, our country would be plunged into permanent and hopeless bankruptcy, instead of being swept by a temporary and passing gale, seems to be entirely lost sight of. But whenever facts can be gathered, which seem to prove that farms are decaying, that the profits of agriculture are small and unsatisfactory, and that the agricultural mind is obtuse, and the ag-

ricultural purse is empty, these facts are magnified and paraded with an air of triumph and satisfaction, which legitimately belong only to those who are removing a great wrong, or abating a great nuisance.

#### Agriculture not Declining.

Now, to a calm and fair observer, agriculture is neither unsuccessful nor declining. It is a many-sided occupation, not easily destroyed. Its channels are numerous. Its opportunities are various; and its energies should be equal to its opportunities. The closing of one channel is but a signal for the opening of another, and suppressed at one spring head it will break forth in newer fields, like the sacred fountain of the fabled Arcthusa. If any man supposes, either for the confirmation of a theory, or the gratification of a prejudice, that the great tree is dying because a single branch has withered and perished, he will find himself, when, perhaps he least expects it, enjoying the blessings of that generous shelter and shade.

The County of Essex, perhaps, affords as good an illustration as can be found of the readiness with which agriculture adapts itself to attendant circumstances, and finds prosperity in one way, if it cannot find it in another. Time was when the farmer of this County was devoted to the production of all those crops which enter into the general business of agriculture. Beef was raised on his pastures, and fattened in his stalls, on corn of his own raising. Hay and potatoes were his staple crops. The dairy of the county was quite distinguished for its butter and cheese. The prosperity of agriculture was undoubted. But as time went on, a change took place, which can be well set forth in the following figures, indicating the comparative condition of agriculture in that county in the two periods of 1860 and 1870:—

	1860.	1870.
Number of cows	10,425	9,076
Number of oxen	3,585	2,319
Number of swine	5,787	4,938
Amount of corn	153,355 bushels.	91,233 bushels.
Amount of butter	440,340 pounds.	335,835 pounds.
Amount of cheese	50,532 pounds.	22,782 pounds.
Amount of hay	56,833 tons.	50,299 tons.

These figures, said Dr Loring, are somewhat discouraging, but they tell only one-half the story. For while the amount of corn, and hay, and butter, and cheese has declined, and the number of oxen and cows in the county has diminished, the growth of market garden crops has largely increased. The value of the market gardening in 1860 was \$175,000; in 1870 it was nearly \$400,000. Now, what does all this prove? Not that agriculture is declining, but that an acre of onions or cabbages is worth more than an acre of corn or grass; that it is more profitable to supply the market with milk than with butter and cheese. To specific crops, then has the county turned its attention; and never in its history has the soil of the county been a source of more profit to the owner than it is to-day. All around the great centres of trade and industry, Lawrence, Haverhill, Salem, Lynn, Newburyport, and Gloucester, the farmers are prosperous; and everywhere the farm houses present an air of neatness and comfort, and the fields indicate a prosperous application of agricultural skill.—Address of Dr. Loring, at Springfield, Mass., from Massachusetts Ploughman.

#### Slab and Stone Drains.

A walk into the meadow revealed the fact that an under drain had become choked up, and that the water was finding its way to the surface. The job of digging it up looked uninviting in the extreme. But the vision of water grasses generally, and of bulrushes in particular, and in abundance, nerved me to the task. A half day's work opened up the difficulty, and the water passed off again under the surface. The mischief of choking the drain was laid to the mice, but upon examination we found the slabs had settled into the soil, so that the water could not pass along.

The drain at this particular place was made of hemlock slabs, placed back to back, leaving an open space between the lower edges. Stones were placed between the bank and the slabs to hold them in place. Green brush, from pasture hemlocks, was liberally thrown in, and the whole covered with soil. For ten years they have proved all right. The slabs were taken out, but no signs of decay appeared. They were returned to their old place in the ditch, and I hope they will not behave badly for another ten years.

Just above this was a short drain, that was made differently. Small logs, or large poles, were placed on either side of the trench, and slabs placed upon these, leaving a place for the water between the sticks or poles. These slabs were entirely rotten, and had caved in. I presume the water did not

come in contact with the slabs all of the time, and they became partially dry during the dry season.

My stone drains, made in the Scotch style, never fail. I have over 300 rods in all, and wish I had 500 more. It is a pleasure to see the cold water pouring from them, when the plough is turning a light mellow soil above them.—Cor. Mirror and Farmer.

#### Ashes, Gypsum, etc., as Manure.

The *American Rural Home* thus tells how a New York State farmer accumulated \$12,000 worth of bank stock, through the use of ashes, plaster, and other manures:—

During the year 1857, a man named Arthur Dugan, went to the town of Palermo, N. Y., and bought sixty acres of dry, sandy land, with here and there a little pertaining to gravel. He paid \$1,800 for it. He knew nothing about farming, being a machinist by trade, and never held a plough. After prying for his land, he had \$200 left. He began, and found his land was worn out. His first crops were—wheat, five bushels per acre; rye, eight bushels; potatoes, seventy-five; corn, mere nothing. The second year was even worse. He had to hire part of his sheep pastured out; he could not hold his own. But, being a man of excellent judgment, and a great reader, his good judgment, aided by theories, carried him through.

He began by buying ashes and plaster; would draw potatoes fourteen miles to Oswego, and load his team back with manure from the lively stables. His crops increased. His ashes were spread correspondingly thick. He raised principally potatoes and wheat. Now, 2,000 bushels of ashes per year is about what he buys. His potatoes, for several years past, average 250 bushels per acre; his winter wheat, thirty bushels, and over; and he has saved, from his farm alone, till he now holds \$12,000 in bank stock, and would not sell his farm for \$100 per acre. He sold in 1869, in potatoes and wheat, over \$2,300 worth. He is known as the best farmer in this county. Yet when he began buying ashes, old farmers shook their heads, and said:—"He will know better when he has farmed it as long as we have."

**EXPERIENCE IN RAISING WHEAT.**—In the fall of 1872 I sowed one piece of wheat broadcast and harrowed it in, another piece sowed the same way and ploughed in with a double shovel, and a third plot I drilled in—drilled north and south—all equally good ground, and only a few days difference in time (from the 15th to the 18th of September), and that drilled in made nearly double the amount of wheat of any other method. I am satisfied that of an ordinary season a farmer can make the price of a drill (say \$30) in seeding twenty acres to wheat.—Cor. Ohio Farmer.

Experiments made by VonPettenkofer on the amount of water evaporated from an oak tree, show that atmospheric humidity, in so far as it depends upon the presence of forests, is promoted rather by the roots of trees drawing moisture from the earth, than by attraction exercised on rain clouds by the leaves. The latter serve rather as outlets through which the moisture drawn from the soil passes into the air. The oak tree observed by Pettenkofer was estimated to have between seven and eight hundred thousand leaves, and the total amount of evaporation in a year was computed to be eight and one-third times more than that of the rainfall on an area equal to that covered by the tree, the moisture exhaled by the leaves being equal to some 211 inches, while that from the rainfall was but twenty-five inches.

**ECONOMY IN HEDGING.**—I have just been engaged in driving down a few stakes in the line of a young hedge, and drawing through the tops of the hedge plants a single wire, fastening it to the stakes in the usual way. This young hedge was plashed by nicking near the ground and laying over at an angle of about forty-five degrees, last spring. The object in putting the wire through it at this time, is to make it an effective fence, to enable me to turn cattle, sheep, etc., into the part of the corn fields already husked. Now for the exhibition of economy. One hundred rods of such fence as would answer the purpose of restraining my stock as well, would cost one hundred and twenty-five dollars in cash. I find by careful estimates, the cost of plants, of setting, of culture, of plashing, and of the one wire, and work to place it, is less than twenty-five dollars, and the only cash expense of this, is the one wire, and this was drawn out of a hedge row where it was no longer needed. Again, this hedge is a honey locust, which will not be liable to injury by winter. I not only have a present fence at small cost, enabling us to use much needed feed six weeks perhaps before we are done husking, but I have the probability of having a life time fence at only the cost of annual pruning.—Cor. Farm Journal

## Grasses and Forage Plants.

### Grass Land Self-Sustaining.

Grass land can be made self-sustaining, without manure, on ordinary soil, as we well know. We will give a fair case: On the old homestead (in Stark, Herkimer Co., N. Y.), was a lot of seven acres of yellow drift soil, with considerable clay in it. It had been run for many years, first to grain alone, then grain, clover and timothy. The grain crops towards the last could rarely be made to pay—only in a good season; the clover and timothy being sown sparingly, only a few quarts per acre, the crops were rather light, and lasting but a few years, the clover running out and the timothy dwindling, the weeds in part taking their place. So the land was again ploughed and seeded down. This was done for quite a number of terms in succession. Usually two crops of grain were taken and then the land seeded. There was too little clover and timothy to form a good sod, so the crops were but a little improvement over the old grain crops before the advent of the clover and timothy.

A new system was now adopted: this fourteen years ago. The aftermath, instead of being fed off, was left untouched; not a hoof was permitted in the lot. The crop being generally harvested early, the after-growth, by winter, was a large one. Plaster was used every second year. The second or third year a little manure was spread on some of the poorest spots. This was all the manure or top-dressing it received. But, yearly, the aftermath was retained, and yearly there was a crop of two tons per acre, varying but little from it, and that little caused by the season. The crop, with little exception, was yearly, all timothy. The exceptions were the moist seasons, when clover would show; but generally there was a clean field of timothy. Nothing could be finer of its kind. The field attracted attention each year, and was known for its clean, even appearance, not over stout, though a good stand. The expense here was simply to harvest the crop, which, at two tons per acre, worth twenty to twenty-five dollars per ton, for a number of years, realized forty or fifty dollars per acre. Thus, remember, on land originally not very good, and considerably run down after that, and receiving but a drublet of manure and biennial dressings of plaster. It was the aftermath that did it. This was the only difference from the previous treatment.

Last year the sod was turned down. It revealed a rich, mellow surface. There seemed to be life in the soil—the effect of the enrichment (the debris of the annual crops, including aftermath, roots, and stubble), and of the frost, which for many seasons in succession had left its effects upon the soil. The field was put to oats, fodder corn, field corn, and potatoes. The growth was one of the finest we have ever seen, and was a novelty on the farm, and in the neighborhood. The present season it was ploughed and put to grain—a good crop—and seeded down. About a peck of clover, and a corresponding quantity of timothy per acre was sown, and the harrow passed over to cover the seed. This is the best catch we have seen this season, and comes up to the old fashioned seedings of other years.

This was not properly a clover sod, though started with clover, and having occasional appearances of it. It was a network of timothy roots, bulbs, and stubble, and aftermath adding their tribute. The soil in some spots, where the clay prevailed, was moist; and in the spring would sometimes, when the frost was severe, bear the dead plant on its surface. These spots needed draining.

It is in this way, by retaining their growth, or part of it, that the wild lands maintain themselves. Thus the prairies. Thus our muck beds. It is a lesson Nature has been ever trying to teach us; but we are slow to learn. We pity the grass, such a dense, rich growth, so much needed in the fall. "And was not intended to be fed?" And so it is

fed; the roots of the grass laid bare, so that the frost has a direct effect upon them, leaving no nutriment for a spring start, the cattle trampling the ground and making muddy paths in it. It will take long for what grass remains to get a start in the spring, the frost having so occupied the ground, and the yield which follows during the summer will be lessened more than the aftermath amounted to. But most of the grass will run out, requiring re-ploughing or re-seeding, with little increase of fertility. Is not this the case with too many of our meadows? "And does it pay?" It certainly pays much better to treat in the way we have indicated. Let meadows be made self-protecting and self-feeding. This may be done by giving part of their crop to them, which they re-produce the year following. There is no labor laid out for manure; no expense. The land does it for us, and better than we can do it—more evenly—and just the right pabulum, the plant itself with all the necessary material in perfect proportions.—*Cor. National Live Stock Journal.*

### Indian Corn in Eastern States.

Mr. Waring does not believe in corn-raising in Rhode Island. He thus gives his views in *Ogden Farm Papers* :—

Corn! Indian corn is the *ignis fatuus* of Eastern agriculture; a relic of the days when our ancestors had to grow it at home, or go without it, a habit of the Yankee farmer, a rut of the old fogysm which hates to adopt new ways, and relinquish old ones. I modestly venture the opinion that not one bushel of corn has been grown within five years anywhere in New England, New Jersey, or Eastern New York, that has not cost more than it came to, that has not been grown at a positive loss; and I think it is time for men who call themselves "practical" to cast up the account and realize the fact for themselves. On one side we have the market value of a bushel of Western corn, and the added extra value of our better article, call it if you please \$1.00. Nobody pretends that it pays to grow less than fifty bushels per acre, and for all the increase beyond that you must increase the items of labor and manure in proportion, so that it will not pay to grow 100 bushels. Remember that corn is an enormous feeder, and that a full crop can be grown only with an extravagant outlay for manure, and that even the moderate crop which can be grown on rich land, without much manure, takes from the ground material which would bring more money if allowed to produce grass. I have never seen a statement of the cost of producing a crop of corn for a premium, in which the loss in fertility was estimated at anything like its fair value for the growth of grass. Then take the question of labor. Labor is the millstone that threatens to pull us under; we can't do this, and we can't do that, because of the labor it would take, and the high wages we must pay; yet we insist on growing a crop that costs more for labor than any other we cultivate, except potatoes, and labor that must be applied when we ought to be cutting our early hay in June, or attending to our root crops in the fall. Turn it which way we will, our corn-growing is a mistake, and a grave one. It seduces us into breaking up grass land that we might better keep good by top-dressing; it consumes labor that we need at the same season for more important work, and it eats into our manure heaps like the dry rot, instead of increasing their value, as the purchase of Western corn surely would do. "Corn, never—corn fodder, always," say I.

### Hungarian Way of Preserving Corn-Fodder.

A Hungarian farmer communicates to the *Agriculturist* a way of preserving corn-fodder without curing, in a sour, succulent state for winter use :—

"The curing of various kinds of green fodder into sour hay, is, perhaps, in the United States not commonly practised, especially the souring of green corn, which should be practised with more effect on the farms of the United States of America. The making of dry hay of green corn is an injurious manner of curing it. Although the writer of this is not acquainted with American farming, except by reading, nevertheless I communicate a method of preservation of juicy fodder peculiarly important for corn-producing America.

"The corn is sown broadcast, or drilled in rows nine to eighteen inches apart, nearly three and one-half bushels to the acre. The field must be kept free from weeds. At blossom time the corn is mown, loaded into waggons, and hauled in. The home-brought corn is put in large ditches ten or twenty rods long, and is here pressed in by a few men walk-

ing on the green corn. The ditch is twelve feet deep twelve feet wide at the top, and six feet at the bottom. The length will need to be sufficient to contain the fodder to be preserved. The ditch must be dug in dry ground. When the ditch is filled, the green corn is built like a stack upwards about ten feet over the level of the ground. The finished stack is then covered with earth about two feet thick on every side. It is best to cover the top of the stack at first, because the weight of the earth pressing down the green corn, as much earth is not needed for covering as in the case when the sides are covered at first.

"The sour hay-making enables us to store a large quantity of juicy fodder for the winter, and if well covered with earth it may be stored for a few years without any injury. The most important of all is, the beasts being once acquainted with this sour hay, like it very much. With us (in Hungary) the sour hay is cut and mixed with corn-meal, or some other ground grain, and given to the cattle; but the sour hay may be fed uncut also.

"In sections where stones and bricks are to be obtained cheaply, the sides of the ditch may be walled, but it is not necessary.

"I should be very glad if these lines would encourage the sour hay-making of corn by American farmers."

**ORCHARD GRASS.**—Orchard grass seems to be gaining favor at the South, as well as the North. A correspondent of the *Southern Farm and Home* says :— "As orchard grass gets ripe at the same date, holds the clover up for the scythe, furnishes the best of early spring and winter pastures, and as it will grow in clumps, the clover only filling up what would otherwise be bare, and as a good stand of this grass is everlasting under any rational sort of treatment, I prefer the two mixed.

**HUSKING CORN.**—There is a great knack in husking corn, and some men's hands, and strong, horn-like thumb nails, are peculiarly adapted to rapid work. The operation of breaking off the husked ear, from the husks, is very trying to the hands, and the skin between the thumbs and forefingers, if not unusually tough and leathery, becomes blistered and sore. Mittens are inconvenient; gloves worse. I have tried, and thrown aside the "husking gloves," armed with metal claws, etc., and have gone back to the simple, old-fashioned husking-pin, made of hickory, scraped smooth, with a leather thong to go over two fingers, while the pin is held within the hands, across the base of the fingers.—*Ec.*

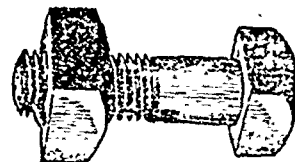
**RAISING CLOVER SEED.**—Having had some experience in clover raising, I will say for the benefit of any who may be interested in the subject, that I believe it produces more milk than either timothy or corn fodder, and at the same time I find that land improves by frequently being seeded to clover. As to whether plaster is indispensable, I have always used it, and with varied results. The present season I had twenty acres of clover, which I had intended for seed, and to which I applied about May 20th, 100 lbs. of plaster per acre. On examining the heads this fall, I found that very few of them had seed, in fact, I do not think the twenty acres would have produced five bushels, and I abandoned the idea of cutting it for seed, and put a part in for feeding, and pastured the remainder. On an adjoining farm I saw some clover well filled with seed where no plaster was used. There are also good farmers who will not use plaster, as they believe it exhausts the soil; most, however, including myself, believe in the use of it, especially in growing clover where it is not liable to lodge.—*Cor. Country Gentleman.*

**EARLY CUT GRASS BEST.**—The German papers publish details of a series of experiments carried on at the agricultural schools of fatherland, for the purpose of testing the nutritive properties of grass and hay at various stages. The experiments were initiated by the excessive demand for forage in Germany, but are not the less valuable on that account. By an elaborate series of analysis, it is shown why young grass is more nutritious than mature grass. The physiological experiments show that it is more easily digestible. Thus grass 2½ inches high contains nearly 59 per cent. more of albumenoids than grass which is six inches high, and about 10 per cent. more of "crude fat" (5.24 per cent. against 4.82.) The mature grass contains more woody fibre and less flesh-forming matter than the young grass, and, besides this, it is found that the nutritious albumenoids exist in a less soluble form in hay than in young grass. Hence the difference of nutritive value and digestibility. Autumnal hay was found to be more nutritious and digestive than summer hay.

## Implements of Husbandry.

### A Lock Nut Bolt.

The nuisance of loosening, and lost nuts from machine bolts, thills of buggies or waggons, and other numerous places where farmers and other folks need and use bolts, need no longer be submitted to. The costly and dangerous accidents to machines, the dangerous dropping of thills when travelling at speed upon the road, the expensive repairs needed in grist-mills and saw-mills due to the same frequent cause, and all the other too-numerous-to-mention troubles which thus arise, may be prevented by this ingenious and very simple contrivance. Its simplicity is such that the wonder is that no one ever thought of it before, and almost contradicts its claim to ingenuity. The accompanying engraving shows of what the contrivance consists—an ordinary screw bolt and nut, with a groove cut in the bolt from the lower end



Lock-Nut Bolt.

across the thread of the screw and a short distance above it. The nut is in no way different from an ordinary nut. A copper, or other soft wire, is placed in the groove, and as the nut is turned with the wrench it cuts a thread with ease upon the soft wire. When the nut is screwed home, the end of the wire below it is turned up, or "upset," with a common set-punch or a tenpenny-nail and a hammer. This locks the nut, and entirely prevents it from shaking or jarring loose. The wire is soft enough so that the nut may be very easily unscrewed with the wrench, but cannot be unscrewed by the fingers, or by any less force than that needed to use the wrench.

We look upon this contrivance as of vast importance to farmers especially, and expect to see it in universal use in all farm machinery. It is patented, and manufactured by the Lock-Nut and Bolt Company, of New York, who furnish the bolts, and for a very small sum confer licenses to use them on any machine.—*American Agriculturist.*

### Potato-Plow.

The *Mark Lane Express* has the following on one of the implements exhibited before the Royal Agricultural Society :—

Corbett and Peele's plough has a single mold-board, and has a revolving disc composed of several teeth or tines, which, by a simple attachment, is fixed to the handles of the plough, and works just behind the mold-board, catching the furrow as it is moved by the plough, and tearing it in pieces. As it is fixed to work at an angle to the mold-board, and to the furrow, the potatoes are deposited on the surface of the pulverized land, and very few fall into the furrow sole, where they would be covered by the next ridge unless gathered immediately after the plow. By this single mold-board, two-thirds, or nearly all the ridge, is turned over and broken up on the mold-board side, and the furrow sole left has scarcely a single potato in it. The revolving disc, acting on the whole furrow, at once produced a fine level and broad bed for the potatoes to fall upon.

This plow was put to work upon recent potatoes, the tops of which were ripe, and made capital work. A few potatoes were buried by the mold thrown up by the disc, but there was no scratching at all for the gatherers, and they could gather much more rapidly than after the ordinary plow used in the district.

A great merit of this principle is that it is adaptable to any ordinary plow at the cost of £3. The plough, with a rotary disc, is here shown as one implement, but virtually the invention consists in an apparatus to be attached to a plow, and forming part of its fittings, or furniture, like the share or the coulter, but only to be used for special purposes. It will, however, pulverize land, winter ploughed, in ridges, or at the time of ploughing, most efficiently.

### The Harrow.

A correspondent of the *German town Telegraph* says:—It must be plain to every thinking farmer that to-day, with all the improvements thrown upon the market, there is more of primitive rudeness and want of brains in the structure of the harrow than in any farm implement whatever. It would seem that the original harrow-maker had got his idea from seeing a boy pulling a puppy backward by the tail, and thought it would simplify manufacture and deepen the effect of the implement by using a single point and omitting the claws. At all events we see in all the harrows in use the body of the puppy perpetuated more or less in the shape of the frame used for no other mechanical purpose than for keeping a certain number of teeth (or legs) in position. In most of these frames the "teeth," or whatever you choose to call them, are set in a vertical position. In some the teeth slant backward, which, for general work, is an improvement; but in certain kinds and conditions of soil are not so good as if they slanted forward. In others, the frames hold cutting disks in position, thus introducing a different but not a better method of pulverization for general use. In others still, the frame holds in position an adjustable arrangement of teeth by which the backward or forward slant or vertical position can be used. But the main trouble with all these arrangements of the harrow is that the teeth, like the legs of the puppy, are so long as not only to prevent all abrading effect of the frame upon the surface, but also when used in seeding to cover some kernels five inches deep, some four, some three, and so on; causing irregular start and growth of plants, like a field of off-replanted corn.

Now, what the farmers want, instead of these, some of which cost from \$30 to \$40, is a cheaper harrow, that by suitably combined results of frame and teeth will effect a perfect pulverization of the depth of two or two and a-half inches at one dressing. If you object to the depth, Mr. Editor, I have to say that it is as deep as the harrow in use pulverizes the soil on half a dozen dressings; and more especially have I to say that inasmuch as vegetable physiologists have fully established the doctrine that no seed should be planted more than two or three times its own diameter in depth, no harrow used for seeding should have teeth of either cutting or abrading action, or both, more than two and a-half inches long.

The question first in order then is, Shall we have such a harrow? The answer to this rests in the future. We shall see! In the meantime need it be added that no louder call from any department of farm use, demanding prompt attention, comes from the "the million."

### A New Straw-Cutter.

The other day we were shown a new combination Hand Straw-Cutter, called the "Canadian," which, judging from its general plan, and the favor with which it has already been received, will soon supersede a great many other kinds now in use. It is so strong that it can scarcely break, with even considerably more than the ordinary amount of usage; so simple in construction that its "getting out of order" is simply out of the question. Its capacity is such that fully as much work can be done by it as by any other hand machine, whilst coarse material, such as corn-cobs, &c., can be cut as readily by it as straw, without any change of adjustment; and it is proportionately more easily driven than any, or at least, most of the other hand machines now in the market.

The cutter, in brief, consists of the application of all the latest appliances of power machines to hand use. The knives are attached to the radii of the fly-wheel, and shave closely, like a shears, against two steel lips at the end of the box. The handle, too, is attached to the fly-wheel, the turning of which constitutes the driving of the whole concern. This wheel is, of course, adjusted so as to run at the end rather than the side of the box, as in other machines. As it revolves it sets in motion a small iron worm at the side, and this latter in turn, working in the end cogs of two toothed iron feeding rollers, causes them to revolve one against the other, thus constituting the feeding process. A set of strong springs also set above the upper roller, yield slightly under pressure, so as to prevent "choking," whilst their elasticity always secures sufficient pressure to keep the "bite" solid until it is cut.

The machine is easily worked, from the fact that the only friction of any account is that of a smooth "worm" gliding along between the smooth cogs of two small wheels. We understand it is manufactured in different sizes, and its price is about one-half that of the power machine.

### Velocity and Motion.

It is of eminent importance that farmers should have a more perfect understanding of the strength of the materials of which their implements are made, and the most economical and effective velocity for the moving of different parts of complicated machinery. Manufacturers of all kinds of farm implements should understand well the laws of force and motion, and whether a given operation is performed, for the most part, by muscular force, or by the momentum of a machine, as the great efficiency of the working parts of a machine depend almost entirely on the proper weight, or the most economical velocity, of those parts that perform the operation required. We illustrate our meaning:—When a given operation is to be performed by machinery, if this work be light it becomes necessary to increase the velocity in order to economize time, and to make a judicious appropriation of the force employed. When the work is heavy and the effective force limited, the velocity must be diminished. Were a person, when turning a fanning mill, to attach a crank to the journal that hold the wings or fans, and give the various parts of the mill the necessary velocity, the fatigue would be so great in a few minutes as to cause complete exhaustion. But by employing a system of wheels, so that the action of the muscles may be much slower the labor may be continued for several successive hours with but little fatigue. This principle holds good in constructing almost all kinds of hand and horse implements. There is a certain movement, or velocity, of the various parts of almost every implement or machine which will render the working parts more effective than they would be with a slower or quicker motion, or with a higher and lower velocity.—*E.*

### Root and Straw-Cutters.

An intelligent and highly successful farmer who also feeds considerably more than the average quantity of stock annually, showed us the other day a large power straw-cutter, such as was described in a recent number of the *FARMER*, which he has had in active operation every season during the past ten years. The machine, when we saw it, had just been fitted with new knives, and certainly looked good for ten years more. This gentleman had, moreover, applied it to a double use, viz., that of threshing peas as well as straw-cutting, and informed us that it accomplished this latter operation most satisfactorily. He simply changed knives according to the purpose he wished it to serve, using for peas a pair of old dullish blades, and for hay or straw a pair of sharp ones. We were also shown, at the same time and place, a Root-Cutter, on the "Gardiner" principle, which he had had in use for over twelve years, with no other repair than that of knife-sharpening. Of course, the knives were, by this time well worn down; but the frame, gearing, and cylinder, were apparently as firm and substantial as ever, and with the expenditure of a few—say four or five dollars—to have the machine equipped with a new set of knives, he expected to render it as fit for the next decade, as it has been in the past. We asked him to let us into the secret of all this, which he did in a few words: "Keep dry, under cover, oil well when working, and when done grease the blades." Atmospheric air, or rather its oxygen, is the great enemy of iron; and the sooner our farmers appreciate the fact, the better for their pockets.

### Grain Binder for a Reaper.

The *Davenport (Iowa) Gazette* states that S. F. Parker, of that city, has introduced an improved grain binder attached to the side of a reaper, the bed of which is traversed by a rake on an endless belt that carries the grain from before the sickle, when cut, and lays it over on the binder. This is a concave of sheet-iron in which the grain lies until bound. From a spool the twine unwinds through the tying apparatus, is caught by a nipper, carried around and wrapped tight on the sheaf, is tied into a perfect knot, is cut, and the sheaf drops to the ground securely bound. The making of the knot, never before accomplished in all the numerous attempts at binding by machinery, is completely successful; the mechanism by which this is accomplished being as certain in its operations as the making of a stitch by a perfect sewing machine.

The *Gazette* adds, respecting this improvement, "that once in successful use, they will revolutionize harvest work, and will add millions of dollars to the wealth of the nation, in the immense saving they will effect in the cost of securing the grain crops of the great West."

WHEN threshing wheat, rye, or barley, the top and bottom bundles of the stack ought always to be thrown out, and shelled separately for chicken feed. If permitted to go through the machine with the balance of the stack, it will deteriorate the whole crop 10 or 15 cents per bushel. Better throw these top and bottom bundles entirely away, than suffer this to happen.—*Colorado Agriculturist.*

**RUNNING CORN STALKS THROUGH A THRESHER.**—"I rode ten miles this morning beside George Heaton, who had told me that he had tried running corn stalks through a threshing machine, with a view to preparing them for cattle food, and had found it far better to do so than to cut them up. It mashes, and breaks the stalks, leaving no sharp, silicious edges to make the mouths of the animals sore. Cattle will eat a larger proportion of the stalks thus pressed, than when cut." So writes "A Working Editor out of Harness," in the *Rural New Yorker*.

**PATENT TREE DIGGER.**—On Thursday last, we accepted an invitation from Mr. Ritz to ride down to his nursery and see in operation a patent Tree Digger, which, for rapid and perfect work, cannot be surpassed. It is constructed by two beams similar to those of an ordinary plough, with double set of handles; attached to these beams, which stand about 18 inches apart, is a knife or cutter, the blade of which is about 10 inches wide, and about 18 inches long, connecting at the bottom in one solid piece, and being about 10 inches wide on the bottom. With one man at the handles of each beam, two span of horses, and a driver, this machine will dig 50,000 or 60,000 trees in a day. When in motion the knives cut the roots on each side of the tree, and on the bottom, at a distance of about 16 inches from the surface, and it also loosens the ground, and raises it up, leaving the trees standing in the ground just as they grew, but which can be easily lifted out of the ground as you want them. Trees dug by this machine are taken out of the ground in much better condition than they possibly can be by hand.—*Walla Walla Union.*

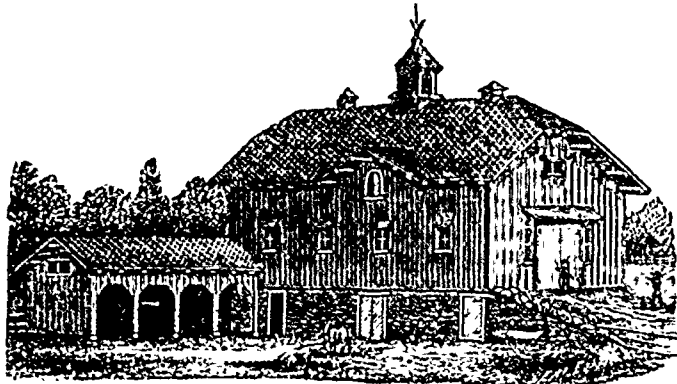
**SWIVEL PLOUGHS.**—Side hill, or swivel ploughs, made of cast iron, have long been in use in hilly sections of the Eastern States, to avoid the difficulty of turning the furrow up hill. A furrow is made across the lowest side of the field. At the end of the furrow, the mold-board is unfastened, and turned from right to left on a swivel at the bottom of the plough. This is done without relinquishing hold of the handles. It is then fastened to its place by means of a hook, all of which is performed without hindrance, while the team is turning about. The team then travels back on the same side of the field, the near horse in the open furrow, turning the second furrow in the same direction of the first, continuing thus, ploughing back and forth on one side until the whole field is ploughed. The team always turning on the unploughed land, would avoid treading hard any of the ploughed land at the corners, also, dead furrows. These are unproductive, as they often retain pools of stagnant water, or promote washing of the soil. They mar the beauty of the field, and are annoying in reaping or mowing. If manufacturers and dealers would introduce swivel ploughs, they would meet ready sales, and prove to be invaluable to farmers in ploughing level fields and meadows.—*Cor. Farmers' Union.*

**STEEL BARS FOR BELLS.**—Steel bars produce a very pure, distinct, and melodious sound, and possess many advantages over church bells of moderate size. In Germany, they are in some measure supplanting bells in church steeples, and an English publication, *The Choir* advocates their general use, on the ground that while in point of sonority, they are equal to the common bell; in certain other respects they are to be preferred to it. Thus, their weight will be light in comparison with the ponderous engines they are to replace. They will not burden the steeple so much, and consequently will give more scope for architectural design. Their winding, and hanging up will not be so difficult, dangerous, and expensive. They are not liable to crack, as is the case with bells, and are therefore adapted for use in any climate. They can be operated by a simple, mechanical contrivance. The cost of these bars is so low that three or four of them, forming a peal, whose weight would not exceed one hundred pounds, could be manufactured in England for fifty or sixty dollars, whereas three bells of the same power would cost five times as much. Every note, or harmony, can be produced more easily, and the tuning is obtained more precisely, than in cast bells.—*Galaxy*

# Rural Architecture.

## Designs for Barns.

In examining the accompanying design—intended to accommodate about twenty head of cattle with



Design 1—Barn for Cattle.

all the conveniences suitable for a first-class barn—it must be borne in mind that there will always be considerable variations, according to local circumstances, the surface of the ground, and the wants of the owner. We could give half a dozen plans, all quite different from each other, and each adapted to some peculiarities of position; but the one now described is one of the most convenient, when the ground, is in proper shape for it. It is supposed to be placed between two slight knolls or elevations, or to extend across a small depression in the surface of the ground, so as to be easily entered at each end, and admit the free passage of waggons in at one door and out at the other, without the trouble of backing out, as in most barns. Or it may be built on nearly level ground, ploughing, scraping and lowering the place for the basement only a few inches, or not over a foot, and placing the earth thus excavated at each end for the entrance roadway to the floor.

Every barn should have a basement, not only for the cheapness of the space thus obtained, but for the security and preservation of the timbers, and we shall take it for granted that every good plan makes provision for such a basement. We begin therefore at the bottom. The barn is supposed to be 48 feet wide and 72 feet long, and will be spacious enough for a good hundred-acre farm, under fair cultivation. The size may be varied, and the plan is of such a character that any desired length may be given to it. The plan of the basement (fig 1) nearly explains

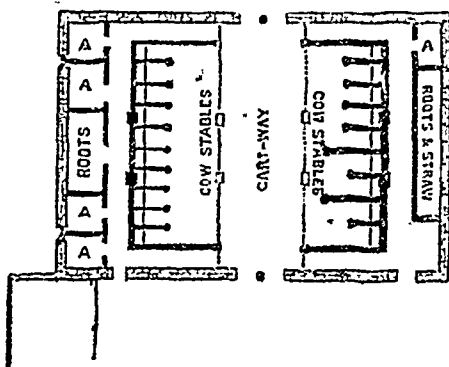


Fig. 1.—Plan of Basement.

itself. A cart-way a little lower than the stalls, and 12 feet wide, runs across through the centre, chiefly for the purpose of carrying off the manure as fast as it accumulates. There will be no difficulty in making this through passage, provided the ground is nearly equally level on both sides of the building. But it will not be practicable if it stands on a slope or hillside, in which case the cart must be backed in through the double door for drawing out the fresh droppings or manure.

More space is given to the cattle-stalls than is usual, both for the health and cleanliness of the animals, and for the convenience of the attendant. By taking off a space or passage-way next the wall three feet wide, 40 feet will remain for the stalls, allowing each one to be four feet wide, except that on the right side, there are four stalls that are each five feet wide, to admit larger or fattening animals, or to be used as horse-stalls occasionally, if circumstances should require. The free passage which extends all around both lines of stalls contributes greatly to the health of the cattle, by allowing a freer circulation of air, and preventing contact with the damp walls of stone. The small apartments, A A A A, which may be 8 by 10 feet, are intended as calf-pens, or for cows expected to have calves. The root bins at each end are protected from freezing in winter by two or three feet of loose straw thrown down upon them from above.

The fodder for the cattle is passed down the bay through the ventilators or shoots, VV, fig. 2, into the passage in front of the mangers, and the

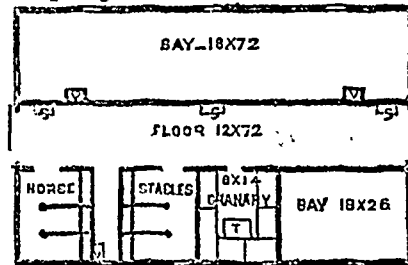


Fig. 2.—Plan of Main Floor.

straw for covering the roots, and littering the stalls is thrown down through the side trap-doors, SSS, from the threshing floor.

The horse stalls are placed above, as being drier and more healthy—although by the usual close and compact way of constructing cattle stalls, enough room would probably be left for both below; but we prefer more space and better health. The stalls for the horses on the upper floor may be 5 or 5½ feet wide, leaving one in each apartment next the doors 7 or 8 feet wide, so that a pair of horses in harness may be driven in and fed side by side, in the middle of the day, or at any hurrying time, without stopping to unharness or separate them. The dotted lines in the passage between the horse-stables show the place of the ventilator overhead. The hay may be thrown from above through this ventilator, or it may be fed to them from the barn floor.

The granary will hold several hundred bushels of grain and meal. A waggon may be readily loaded from this granary by passing the filled bags down through the trap-door T, to the waggon below in the passage already described; and a tube and slide may enable the attendant to draw oats or meal for the animals below.

If desired, the space of the smaller bay, at the right of the granary, may be occupied as a tool-room, workshop, &c.

The perspective view of the barn (at the head of this article) is intended to represent a handsome exterior, suitable for a farmer who has some regard to the ornamental appearance of his estate—the additional cost being more than compensated for, by the protection afforded from the weather by the broad projecting eaves, and by the thorough oiling and painting of the outside. The posts should be not less than 20 feet, as horse-forks will throw up the hay, &c., with ease to the top of the bays. The space contained in the large bay will be over 30,000 cubic feet; in the bay opposite, and over the nine

feet space of stables, will be over 20,000; while space equal to 6,000 may be occupied on platforms over the floor. In all, 56,000 cubic feet, or enough to stow away about 100 tons of hay, or 50 tons of hay and an equal amount of unthreshed grain.

### Some of the Details.

There are several details connected with the construction of this barn that should not be overlooked. Slate for the roof is the best and cheapest material that can be used on a barn, when its durability is taken into account; and the rainwater will be cleaner and purer than from any wood roof. But if shingles are used, the whole should be well coated with crude petroleum. Two barrels of petroleum, costing about twenty-five dollars, would cover the whole roof of this barn, and a man with a whitewash brush would apply it in three days, making the whole cost only thirty dollars, and it would be worth at least three hundred dollars.

The whole surface of the roof, including the eave-projections, would be over 4,000 square feet, and more than 2,500 barrels of water would fall annually upon it, affording seven or eight barrels daily for watering cattle, if supplied from this source all the year round. If, therefore, there is no water from springs or wells, the cisterns should hold 700 or 800 barrels, so as to afford a supply for three or four months of dry weather, should it occur. If there are other sources of water supply, this size would not be necessary.

The shoots or ventilators used for throwing down hay from above, should be planed smooth inside, and be slightly larger below, so that the hay will have a free passage down, and not lodge in them. The position of the ventilators not being exactly under the peak of the roof, and the one from the horse stables being quite at one side of the barn, they are carried up to the top of the roof, close under it, in the direction of the rafters, as shown in fig. 3.

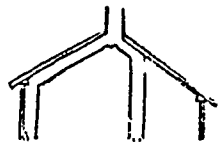
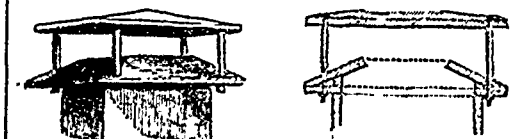


Fig. 3.

The trap-doors for throwing down straw from the barn floor, are not flat on the floor, but open through the board siding which surrounds the floor, the doors dropping flat when opened, and being buttoned up again when not in use.

The ventilators at the top of the roof, near each end of the building, are shown by figs. 4 and 5—the first being a perspective view, and the second a



Figs. 4 and 5.

section. They are made of two-inch plank, the top being held to its place by iron rods firmly screwed on. These ventilator tops cost but a few dollars each, and if made in the form represented, will always cause an upward current through the tubes when there is any wind or breeze.

A tube or discharger may pass from the granary to the stables below, for the conveyance of oats or feed, and always furnish a ready supply, if made in the form shown in fig. 6. The grain may be scooped up with a dipper from the horizontal open box, which may commonly be covered with a lid at the dotted line, and locked, if desired, when not in use.

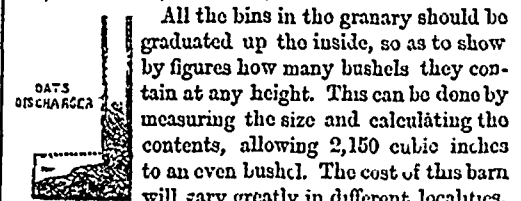


Fig. 6. with cost of materials and perfection of finish.—Illus. Annual Register of Rural Affairs.

## Horticulture.

EDITOR—D. W. BEADLE, CORRESPONDING MEMBER OF THE  
ROYAL HORTICULTURAL SOCIETY, ENGLAND.

### ORCHARD.

#### Best Twenty Varieties of Pears.

An esteemed correspondent desires us to give our readers a list of the best twenty varieties of Pears, so that they may know what to plant for their own use, and what to place on the exhibition tables. It is an easy matter for us to give our opinion concerning the varieties of pears with which we are acquainted, and to set forth the names of those to which we give the preference, but to give a list that will be considered best by the various judges at our several Horticultural and Agricultural Exhibitions is more than can be expected. There is not only something to be allowed for difference of opinion, but much more for want of thorough acquaintance with the several qualities of each of the varieties exhibited. The judges bring to the performance of their truly difficult task such knowledge as they may possess from their personal observation and experience. A given variety may have succeeded well with one or more of them, and the quality of the fruit may have been satisfactory, simply because they are quite unacquainted with the superior qualities of another variety shown in competition. Or the competing variety may not have been well adapted to the peculiar soil or exposure in which the judge is accustomed to test his pears, and as his experience with it has not been favorable, he necessarily marks it low, ignorant of the fact that his experience is an exceptional one, and that were his range of knowledge more comprehensive he would form a very different estimate. And in no fruit is this more true than in Pears. Observation extending over both a considerable period of time and a considerable extent of territory is requisite in order to enable one to form a just estimate of the value of any variety of Pear.

In giving the list, however we shall also give the reasons for our preferences, so that our readers shall be able to judge for themselves whether we have just grounds for these conclusions.

#### 1. Seckel.

This small pear has so long stood at the head of the list and is so highly esteemed by so large a proportion of fruit growers and fruit consumers, that it were quite unbecoming in the writer, to place it anywhere else than first. Downing says of it that it is "the richest and most exquisitely flavored variety known." The tree thrives well in a large part of the Province, adapts itself well to a great variety of soils, and is not as subject to the "fire-blight" as many other sorts.

#### 2. Dana's Hovey.

Another small fruit, but second only to the Seckel in flavor, ranking with it among the "best" in quality. It is ripe from the first of December to the middle of January. The tree is a vigorous grower and quite productive, promising to be sufficiently hardy to thrive well in all Western Ontario.

#### 3. Doyeune Gray.

This pear is not often seen at our Exhibitions, and is not as well known as the white Doyeune, but it is a finer pear, and now that the white Doyeune is so often injured by those black spots which spread so rapidly as soon as the fruit is gathered, causing it to decay, this variety should take its place. The tree is not so vigorous a grower as the white, but it seems to be equally hardy, and to thrive well in a great variety of soils, and to bear abundantly.

#### 4. Beurre Bosc.

This is a noble fruit, ripening in October, symmetrical in form, of large size, attractive appearance and the "best" quality. The tree is a vigorous grower, productive, yet producing its fruit singly,

not in clusters, so that nearly every specimen is perfect. There is but one fault to be found with it, the tree will not thrive in the colder parts of the country.

#### 5. Winter Nells.

A medium sized January pear, of the "best" quality. The tree is hardy, and very productive, and seems to thrive well in a great variety of soils, and over a large part of the Province.

#### 6. Tyson.

This is a very delicious fruit, ranking between "very good" and "best," of full medium size, ripening in September. The tree has a very upright habit of growth, bears very abundantly, and thrives well in all Western Ontario.

#### 7. Belle Lucrative.

This variety will call out the skill of the cultivator. When well grown, it is a fruit of the highest excellence, ranking "best" in pomological classification. When carelessly grown, it falls much below this standard. While the tree is healthy and sufficiently hardy to endure the climate of Western Ontario, it is very impatient of excessive moisture, the presence of which is at once indicated by a deterioration in the quality of the fruit. Like many of our best pears, the tree is very productive, and while an excessive crop on any of them tends to impair the quality of the fruit, in none of them is the effect of such excess more marked than in this variety. Yet the judicious cultivator need scarce ever fail of placing this fruit on the table in its highest excellence.

#### 8. Flemish Beauty.

Little need be said to Canadian cultivators of the excellencies of this fruit. Indeed, some will probably inquire why it has not been placed higher in this list. Had we been preparing a list for the eastern Counties of Ontario apart from the rest of the Province this variety would have stood at the head of the list on account of its extreme hardihood and general adaptation to that part of the Province. But in selecting a list of Pears, *flavor* is a quality of the highest importance, and excellent as is this variety, those that have been previously named excel it in this respect, while in that part of Ontario where the Pear generally thrives they will thrive equally as well.

#### 9. Doyeune du Comice.

It may be that in time this variety will take a higher rank than the one we now assign it. After it has been grown for a longer time, and over a larger part of the Province, its true position can be assigned it, combining large size, handsome appearance and fine quality, ranking at least as "very good," it possesses many points of great merit.

#### 10. Emile d'Heyst.

Another noble fruit, ripening in November and December, almost "best" in quality, of large size and great beauty, which will find its true place after longer acquaintance. The tree seems to be of the more hardy class, and exceedingly productive.

#### 11. Bartlett.

Not a word need be said of this variety. It is known to every grower of Pears and every consumer. It is placed in the position in this list that we think belongs to it, taking into consideration the quality of the fruit as compared with that of the others, combined with its size, beauty and popularity, and the productiveness and not very hardy character of the tree.

#### 12. Beurre d'Anjou.

Whether this larger, showy and excellent variety shall maintain the position here assigned it, will soon be known, for the Fruit Growers' Association have given it a wide dissemination. Thus far in the writer's experience, it has maintained a high position, both in the quality of the fruit, which has been fully up to the pomological standard of "very good," and the hardihood and productiveness of the tree.

#### 13. Beurre Superfin.

A variety of very fine quality, from "very good" to "best" in flavor, of medium size and beautiful

yellow color, lightly shaded with crimson. The tree has thus far been very healthy and hardy. When this Pear has been more extensively grown in other parts of the Province, it may be that it will finally assume a higher position than the one we have here assigned to it.

#### 14. Urbaniste.

It is surprising that a variety possessing as many fine qualities as this now old sort, for it was brought to America in 1823, has not found its way into more general cultivation. In flavor it is delicious, scarcely second to the White Doyeune, ranking between "very good" and "best," of full medium size, (Barry calls it large,) and fine appearance. The tree is very healthy, and so far as our knowledge extends, quite hardy, thriving well in the state of Maine, and is a regular and abundant bearer. We predict for it eventually a higher place on the list of twenty than we have here assigned it.

#### 15. Lawrence.

Destined to stand higher on the list, is now placed here until more extended trial shall have fully settled its value. Ripening in early winter, juicy, melting and aromatic, it is, to us, the best of its season, and ranking in comparison with all other pears between "very good" and "best." The tree is a moderate grower, of the more hardy class, and bearing good crops of medium size, unblemished fruit.

#### 16. Beurre Hardy.

As its name might seem to indicate this is one of our more hardy varieties. The fruit is large, juicy, melting, highly perfumed, and in quality is very good. Ripe in October.

#### 17. Ananas d'Ete.

Somewhat resembling the Bartlett, but thriving where the climate is too cold for that variety, it well deserves a place in any collection of twenty. The fruit is above medium size, sometimes large, of a pale yellow color, and "very good" quality.

#### 18. Beurre Gris d'Hiver, Nouveau.

A handsome pear of more than medium size, ripening in January and February, of a rich sugary flavor, ranking "very good." The tree is a moderately vigorous grower, and abundantly productive. It has not been sufficiently disseminated in Ontario to test its hardihood in the more northern counties. So far as heard from it has proved very satisfactory.

#### 19. Beurre Clairgeau.

This variety has grown in our estimation within the past few years. A little more age in the trees, and perhaps a better acquaintance with the fruit, have given us a higher opinion of its flavor than we at first entertained. The fruit is large, when well grown very large, of a fine, showy appearance and in quality almost, if not quite, "very good." The tree is among the most vigorous and productive.

#### 20. Cropps' Favorite.

A very showy fruit, large and handsomely colored, and when properly handled, juicy, buttery and rich, ranking "very good," but if allowed to hang too long on the tree it rots at the core. The tree is one of the most hardy varieties we have, equalling, perhaps surpassing, in hardihood the well known Flemish Beauty. This variety was widely disseminated in the spring of 1873 by the Fruit Growers' Association, and in a few more years its true value for cultivation in Ontario will have been ascertained.

The list of twenty varieties is thus completed. Other cultivators might, and doubtless would, make up a list that would vary somewhat from this. Some old and well known varieties are admitted. The *Beurre Diel* is usually found in most collections as one of our standard late fall or early winter sorts. But there are better pears than the *Beurre Diel* in cultivation now. Extended cultivation and lapse of time have shown that the fruit is very variable in quality, so that while it is never pomologically "best," there will be found in the same dish samples running down from "very good" to "good," and from "good" to "bad," and even from "bad" to "very bad."

Besides, it is seemingly capricious in its choice of soils. The best we have ever eaten grew in the garden of W. H. Boulton, Esq., at the Grange, Toronto, the worst grew in our own grounds. Then there is that wonderfully prolific variety, the *Louis Bonne de Jersey*. Yet we submit to its most ardent admirers that in point of quality it rarely, if ever, comes up to any one of those we have named, which often, very often it falls much below. And so of the *Burre d'Arnhem*, a "very good" pear when grown in perfection, but very dainty in its choice of soil, while the tree is very subject to a disease that seems to be peculiar to this variety, that very much disfigures and sometimes kills it.

Thus we might go on to enumerate several other varieties which for one reason and another we have left out of this list. We do not esteem it perfect in time we should probably very much mortify ourselves. If other growers of the pear will only have the kindness to favor us with similar lists, such as their experience would indicate, something will have been laid before our readers that will help to guide them in these matters.

**Protecting Trees in Winter.**

In the colder portions of the country it is impossible to raise some of the finer fruits unless the trees be protected during the winter. Even in more temperate localities it is necessary to protect some trees, especially evergreens, during the first few years of their growth. If red cedar can be readily obtained, a protection can be afforded by tying a number of these among the branches of the tree. Those who will take the pains can, by root pruning and proper pinching, keep dwarf pear and apple trees quite small in size, and with a covering of the kind suggested, succeed with varieties, which, without these aids, would be sure to fail. Mr. H. describes his protection as follows:—"Bring the limbs of the tree together and bind them so as to occupy as little space as possible; drive four stakes into the ground at proper distances apart, and saw the tops off even a little higher than the tree. Take a board about one foot square and drive a nail down through each corner into the top of the stakes, put a board around the bottom fifteen or twenty inches high, and nail a few strips to the stakes equal distances apart, the upper one two or three inches below the cap board. Take long grass or straw and double it over the lower strip, letting the ends hang outside the bottom board; put some on the second strip, letting the ends hang outside of the first, similar to a thatched roof, and continue the process to the top. To prevent the wind from displacing the grass, wind a strong cord around, taking an extra turn around each corner stake, or pass two cords through the grass in the same manner that a shoe-maker sews with two wax ends. Bank up with manure around the bottom board, and place a few forkfuls inside around the tree."

**EFFECT OF SALT ON TREES.**—Prof. Kedzie, of the Michigan Agricultural College, relates that strong brine inadvertently placed under a healthy growing tree, entered the circulation and stood upon the leaves in the form of a white crystalline deposit, causing the death of the tree.

**LARGE COLLECTION OF HARDY FRUIT.**—Mr. Scott, of the Merriot Nurseries, Crewkerne, Somerset, exhibited at South Kensington, on last Wednesday, what was perhaps the largest collection of distinct and well-named apples ever shown in England. There were in all 600 sorts, three of a sort, and they formed a very striking display. The same nurseryman also showed an enormous collection of pears, about 300 sorts, and a series of varieties of ornamental crabs. —*Field.*

**THE MARY PEAR.**—Among all of the early ripening pears, say middle to last of July, the Mary, which originated on the Case Nursery grounds, from seed sown by Christopher Wiegoll, the manager, is one of the most vigorous in growth, very productive, and an early bearer, whether on pear or quince stock. It is of small to medium size, depending much on soil—a rich, strong clay gives size, but on sandy loam, it is larger than Doyenne d'été, and ripens earlier. It is uniform in size, and invariably with a bright, red cheek. In quality, it is according to pomological rules, "very good." One of the most extensive and celebrated pear growers near Philadelphia, Pa., some years since ordered a hundred trees at our suggestion, and says it pays so well that he shall plant largely of it.—*Cleveland Herald.*

**ORCHARD HOUSE FRUITS.**

BY PETER GRIEVE.

**The Apricot.**

The Apricot (*Armeniaca vulgaris*), like most of our fruit trees, belongs to the great natural order, *Rosaceæ*. It is of eastern origin, and was introduced into England from the Levant, at so early a period as the year 1548. In its native habitat, the winters though dry, are cold and severe; and during early spring, when the Apricot is in bloom, hot sunshine accompanied by piercingly cold wind, not unfrequently prevails. When this fruit is grown under glass in this country, it is found to be of the greatest importance, in inducing the fruit to set freely, that the structure the plants occupy should be thoroughly ventilated. Indeed, it has very frequently been found, when this necessary condition has not been fully complied with, that a complete failure in obtaining a crop has been the result, although the trees may have been perfectly healthy, and the bloom abundant; so that very little apprehension need be entertained as to injury likely to result from draughts or cold cutting winds prevailing during the time these trees are in bloom. The Apricot is also fortunate in being, to some extent, exempted from the attacks of insect enemies, such as the aphid, and red spider, not to mention, and even sometimes destructive, to the cherry, at the peach &c.; so that irrigation, and constant syringing are not at all necessary in their case, and, possibly, rather injurious than otherwise. They are, however, subject to the ravages of a small leaf rolling caterpillar, which is sometimes very troublesome, and the only remedy for which is, I believe, careful hand-picking. On this account it is always advisable to have these trees, whether in pots or planted out, as much as possible by themselves, in order that these necessary conditions may, as far as possible, be accorded to them, without greatly interfering with the requirements of the other inmates of the structure. Indeed, in cases where it is necessary to grow these trees in an orchard-house, along with other species of fruit trees, it may then be advisable to adhere to the pot system of culture, using soil or compost, such as has already been described; as this method affords the means of removing all, or any portion of the trees into the open air, where they can be placed for a time, under a north wall, or in some other suitable position, and by this means very considerably prolong their season of ripening. But when a separate compartment can be assigned to them, it will then be advisable to plant the trees out in a properly prepared border of soil, and where every other necessary condition can be accorded to them, and it will then be found that more desirable results will be secured than would be obtained by retaining the trees in pots.

For some years a collection of bush, or half-standard Apricot trees, were grown in the orchard-houses here in pots, along with other fruit trees, but with indifferent success; and they were ultimately planted out in a line in front of the Apricot wall, some 12 feet high, and about 70 yards in length. The bush trees were planted at a distance of 5½ feet from the wall, and 4 feet from stem to stem. At a distance of 7½ feet from the wall, strong posts, or studs, were fixed in the soil 6 feet apart, and 6½ feet high, to these were fixed a strong rail, or plate, and resting upon this plate, and upon brackets under the coping of the Apricot wall, are placed old lights, which had formerly formed a greenhouse, thus forming a glass-roof for the entire length of the wall. The front is formed of weather board, to the height of 2 feet from the ground; and the remaining 4½ feet is covered, when necessary, by a curtain of tripartite, which can be let down, and taken up at pleasure, with little or no trouble. Thus the trees trained to the wall, as well as the bush trees in front of them, are all sufficiently protected, when danger from frost is apprehended. The lights are so placed as not to fit quite close to the wall, so that a circulation of air is constantly maintained, which can be increased, when necessary, by a portion of the lights being so arranged as to be easily drawn down. When the fruit is fairly set, and all danger from frost past for the season, the lights and the curtain are all of course removed, and again put on about the beginning of the following February. The bush trees have now been planted where they are at present for about ten years, and they generally bear good, and sometimes heavy crops of fruit, which ripens later by about three weeks than that of the same sorts trained to the walls, which is found to be an advantage. They do not appear to have in any way interfered with the health, or well-being of the trees upon the wall, although it might

have been an advantage, could the bush trees have been planted a greater distance from the wall. But this was, of course, necessarily determined by the length of the old lights.

With regard to the most suitable varieties of this fruit, there are certainly none to surpass in excellence the sort long known as the Moorpark variety, which may safely be recommended for all purposes; that is for training to walls, for pot culture in or hard houses, or to be planted out in prepared soil, under glass, and trained in the form of either pyramids, standards, or bushes. To this may be added the Peach Apricot, a large, and very fine variety; also a few trees of Hemskaik, Kaisha, Royal, Shipley's, St. Ambrose, and Musch Musch, &c. But the sorts above-named will furnish a collection suitably large for any establishment.

**The Grape Vine.**

The Grape Vine (*Vitis vinifera*) is a native of various countries, and belongs to the small, natural order *Ampelidæ*, of which it is the type, and representative. In this country the Grape Vine is generally grown in structures expressly devoted to its culture, the value and importance of its delicious fruit fully compensating for all trouble and expense incurred in its cultivation. It is, moreover, in all the stages of its development, a very ornamental plant, as well as being exceedingly accommodating in its habit of growth. There are few orchard-houses, large or small, span-roofed, or lean-to, whose space may not be found for a Vine, or Vines, without greatly (if at all) interfering with the other inmates of the structure, either trained to pillars supporting the roof of the house, to wires over the pathways, or in some other way, so as to lend beauty and interest to the interior of the structure, and also to produce abundance of the most delicious fruit. If desired, Vines can also be grown in pots, in the orchard-house, in various forms, such as training the rods spirally to stakes fixed in the soil of the pot, or in the form of a dwarf bush; and, also, in the form of a low standard, or tree. The latter form is, I think, to be preferred for an orchard house culture, and may be produced in the following manner:—Let the plant be a strong rod, established in a 12 or 14-inch pot; let a neat, but strong stake be fixed in the soil of the pot, not, however, so near the stem of the vine as to injure it. To the head of this stake should be fixed a circular, strong, wire hoop, some 18 inches, or 2 feet in diameter, and at a height of some 4 or 5 feet (more or less, as may be desired) from the surface of the pot, tie the rod to this stake, and cut it at the bud which is nearest to a level with the hoop, but rather lower than above it, as the heart of the tree, or standard, must be formed by the two uppermost buds. The shoots produced under these are to be stopped at the second or third leaf, and are ultimately to be cut off altogether, so that, during the first season, only two shoots can be produced, which must be tied down to the wire hoop. These may each be allowed to produce a bunch of fruit, and should be stopped at the leaf above the bunch.

When winter-pruned, these shoots should each be cut to two or three buds from the base of the shoots, so that six shoots will probably be produced during the following spring, which may each be allowed to carry a bunch. The shoots being each neatly secured to the wire hoop, the head of the standard tree will now be formed, and the stopped shoots on the stem should be cut clean off. Grapes grown in this manner, hang down gracefully under the foliage, and have a very pleasing appearance. They should be planted in rich, fibrous loam, enriched with a portion of rotted manure, and half-inch bones. They should also be occasionally surface-dressed with "Mercurial's Vine manure," a rich, and very fertilizing preparation. These standard Vines should not be put mixed with the ordinary orchard house trees, but should be placed with the figs in the warmest part of the house. The sorts may be Black Hamburgh, White, and Royal Muscadine, Sweetwater, &c.—*The Gardener.*

**THE EARLY RICHMOND CHERRY.**—What the Bartlett is among pears, or the Concord among grapes, the Early Richmond is in the list with cherries. The fact of its superior excellence for cooking purposes has made it one of our most popular fruits wherever it has been tested. Large orchards in the Western States prove its popularity in that part of the country, and we have yet to learn a single exception to the general estimate in which it is held. The tree is perhaps more hardy than any other variety, excepting only the Morello, and its regular crops of fruit entitle it to precedence for profit. It begins to bear at a very early age, and when other kinds are terribly injured by the black knot, the Early Richmond is almost exempt. It is not, at least, so liable to disease as others of this class.—*New York Tribune.*



## THE VEGETABLE GARDEN.

## Market Gardening.

Constant enquiries on market gardening matters lead me to believe that a few practical articles on this topic will have some interest to our readers. Nearly all these enquiries are from owners or lessees of small places, near our smaller cities and towns, who cannot depend upon farm crops for a support, and are already engaged in growing fruit and vegetables, or are hoping to do so, and are seeking means and methods whereby to make a small farm yield a large farm's income. Having had a similar experience from a similar beginning, I shall write with particular reference to the wants of this class, not only because they constitute a large portion of my readers, but also because I think they find but little in current gardening literature that is quite suited in their wants.

All the recent works on market gardening which have had so large a circulation and sale, have been written from experience had entirely in the New York market, where the demand is almost insatiable for every class of vegetables, rents high, and labor cheap, and large capital is employed in the business, and, therefore, are not always safe guides for our beginner, with whom the demand for many kinds will be uncertain, land is comparatively cheap, and labor scarce and high, so that horse work must be the main reliance. For a ten acre lot, near New York, besides the ownership of the land, a cash capital in hand of \$3,000 is the lowest to be thought of, and yet our beginner quite likely has not more than \$500, and probably less, and yet with this does, and may hope for success. They all proceed upon the supposition that the beginner is already a capitalist, while our beginner is only hoping and seeking at an early day to become one.

If he has been reading considerable upon the subject of market gardening, he has probably received some impressions of which he should at once rid himself. He has probably judged from the space given them in many books and papers, that early cabbage and celery will be his most profitable and important crops, while he will doubtless find that in his provincial market the demand for them will be so light that they will constitute but a small part of his business, and when he considers the labor, capital, and risk involved in the crops, he will often find them not the most profitable. Nine out of ten beginners, in country gardening must be cautioned against placing their main reliance upon these two crops.

Again, while he can with confidence look for a large return for his labor and capital, he ought not to expect it to equal those received from lands of five times the value of his, and upon which five times the capital has been expended, and near a market much better than his own.

On the other hand, he has read much on which he should think and ponder long and deeply, especially what pertains to heavy manuring, thorough tillage, and double cropping, for these are absolute essentials to success.

The soil, aside from an accumulation it may already have on hand, is merely a medium to convert fertility into vegetation, and it but little is put into the hopper, only a small grist will be received. In other words, if you do not realize the importance of, or cannot procure manure, it is worse than useless for you to engage in the business.

Then, too, the soil must receive high tillage, both to give it that excellent tilth and friability that every garden should have, and also as another form of manuring. The atmosphere is not only the great source of moisture, but also of fertility, and the soil is made up of little mouths ready to absorb both, and the greater the number of these you give in opportunity to get their fill, the larger will be the crop. Tillage, therefore, is not only tillage, but is also manure, and you cannot give too much of it, and the best kind is that given by a cultivator, with a horse in front of it.

But not only should the land be constantly worked, but it should also itself be constantly working, and thus, produce at least, two crops a year. To successfully do this, you must be on the watch to get your crop in at the earliest moment, and also to get it off, to work it early and late, to get it into market early in the season, and early in the morning, and in general, about everything to be on time.

These are some of the things positively necessary for success in gardening.

I would advise no one to engage in market gardening at once. Not because I fear he would not raise good crops, for I have known parties unfamiliar with even the simplest horticultural practices, with the help of reading only, guided by good sense, to raise as good crops the first season as old gardeners, but because he will not know what crops to raise, nor how much of each. Books and papers can teach

him how to raise them, but only an experience in selling, and an acquaintance with his market, will teach him what and how much. Enquiry and observation must be his guide the first year. For the first year, at least, be very shy, and sparing of perishable crops, and those demanding greatest outlay of manure and labor, and it will then be safe to set aside from five to ten acres for gardening purposes. Planted to vegetables in the proportion they are usually demanded in country markets, three loads of fifteen or sixteen years, with the proprietor's help, and some extra assistance in picking and in weeding, can usually do all the work in a garden of the latter extent. For the same amount of land one team will be sufficient, and one horse can be spared every forenoon to go to market. As the garden enlarges, I have found need for one more horse for every eight acres, and to keep it in proper condition the same number of horses should be kept busy hauling manure all winter, and spare days during summer.

## Tools.

While it is true that labor-saving implements are desirable, yet led on by the loud claims of holders of patents, a beginner is apt to be extravagant in the purchase of such. A garden seeder is perhaps a necessity. Holbrook's has given me the best satisfaction. Aside from this, all the tools imperatively needed, are either found on every well managed farm, or the proprietor can quickly make them.

To the gardener, the blunt ends of the teeth of a harrow are almost as serviceable as the points, especially when the ground is fall of long manure, or rubbish. An excellent implement for level working the rows, while both the plants and weeds are small, is made by inserting 15 or eighteen drag teeth of which the points have been flattened and bent forward into the form of an ordinary A shaped cultivator.

To prepare land for fine seeds, and, in fact, for most any garden use, a clod crusher is convenient. For our prairie soil we find a "planker" sufficient. This consists simply of two heavy planks, nailed side by side, to the transverse cleats of which, at their intersection, the whistle-trees is attached. The line of draft elevates the front of this enough so that the lumps pass under, instead of being pushed ahead of it, and the weight of the driver on the planker crushes and fines them nicely.

Perry's scarifier is not a positive necessity, and yet is very serviceable, and can be put to a great variety of uses. It seems to me unnecessarily costly, and demands a strong horse to properly manage it all day. Still I shall keep mine in pretty constant use till I find something better. Miner's sub-soil plough is a very cheap, and very serviceable implement where deep stirring is to be done.

## Sales.

I have had experience in shipping to commission men in Chicago, in wholesaling to green grocers at home and in retailing from my own waggons, on a daily route quite like a milk-man. I am very decided in my opinion that the latter is the most profitable and satisfactory.

Shipping to distant market is very rarely profitable, and always risky. First, the expenses are heavy—careful packing, cost of packages, exorbitant freight and commission, all come from the lowest wholesale prices, often of a flooded market. Then, again, even with the greatest care in packing, unfavorable weather, bad handling and storage, will cause large quantities to heat and spoil and then you not only loose the crop, but add thereto all these expenses, and an additional charge for carting them to the river. Whereas, with our method of marketing, we avoid all these expenses, and obtain the highest retail price, and never yet failed to sell our crop.

Sales to green grocers can often be made to advantage, and if the gardener has not a full variety and supply to keep a wagon running, it may be the only course open to him, but in this case, as in many others, the middlemen claim the lion's share of the profits, and as soon as the market suffers a glut they do not want your crop at any price.

And just here is one of the great advantages of selling direct to the consumer—that you not only secure your own, and the middleman's profit to yourself, but you do have a certainty of a market at paying rates. For, however flooded the market may be, your patrons know they can rely upon your waggons to supply them, and therefore will not buy elsewhere.

Moreover, with most crops it costs nearly as much to wholesale a load as to retail it. Last season one of my waggons was devoted entirely to wholesaling to grocers, while the other two each had a retail route among hotels, boarding-houses, and private families, and the horse and driver of the former could do but little more than the latter, for, though home before noon, the half day was spoiled for work, and upon the whole, considering the exactions and deductions

constantly insisted upon by dealers, it was not at all satisfactory.

I am very strenuous upon this matter of sales, for upon this everything else depends. It is the key-stone of the whole business. No matter how good crops are grown, if they are not well marketed, they are a delusion and a loss. And I am very confident that direct sales to the consumer, from your waggons, is the true method, and that, to pushing, wide awake men, who will manage a garden prudently, and market its produce in this manner, it cannot fail to prove a mine of wealth well worth working. It makes returns from its crops quickly—some 40, and many in 90 days from planting, maturing entirely in one season, they are not subject to winter killing, and very rarely are there heavy losses. In fact, large losses are not very apt to occur from the nature of the business, for your investment being scattered among a good many crops, the business becomes a species of insurance, because what proves detrimental to one crop favors another. If it be too dry and warm for celery and cabbage, it will promote the crop of tomatoes and vines. If too wet for early corn, it will help the peas, potatoes, &c.

Taken all together, I think it certainly affords more pleasure and profit than any branch of farming. To parties already engaged in fruit growing, it presents special claims, while it certainly makes great promises to any one who loves the tillage of the soil.—J. B. Root, in *Fruit Recorder*.

## THE FLOWER GARDEN.

## Among the Roses.

## At the Crystal Palace Rose Show.

The best rose in the show was the Baroness Rothschild. Perhaps having heard that her supremacy among the light complexioned roses was to be disputed by a stranger, Madame Lacharme, she may have taken extra pains with her *toilette*, but, be this as it may, she eclipsed all rivals. The *débutante* referred to is a belle, nevertheless, and a great addition to our light-colored flowers. Among other blondes, Marquise de Montmartre, Mesdames Bravy, Rivers, and Vidot, Mdlles. Bonnaire and Virginal were excellent. Niphotos is sometimes pretty, but it is papery in substance, and (to quote an old Yorkshire farmer) "flothy" in form.

Of pink and blush roses, the best were, Souvenir d'un Ami (shown in admirable form by Rev. G. Arkwright), La France, Monsieur Noman (as exhibited by Mr. Cranston), Marguerite de St. Amand, Centifolia rosea, Mdlle. Thérèse Levet, Marquise de Castellane, and Princess Mary of Cambridge. Of a deeper hue, our dear old friend John Hopper, Edward Morren, Louisa Wood, Countess of Oxford, Madame Clemence Jougneaux, Dupuy Janin and Vicomtesse de Vesmes, were excellent. Of a yet darker and more crimson complexion, Dr. Andry, Ferdinand de Lesseps, Charles Lefebvre, Duke of Wellington, Camille Bernardin (quite perfect in Mr. Baker's boxes), and Maire Baumann principally attracted my notice.

From the darkest of all, I selected Abbeé Bramere, Alfred de Rougemont, Jean Cherpin, Louis Van Houtte, Prince Camille de Rohan and Xavier Olibo.

Two roses, which have been for some seasons in the catalogues, were shown in greater perfection than heretofore—Clothilde Rolland and Marquise de Gibot.

The best of last year's roses—I mean of roses sent out by the English nurserymen in the spring of 1872, and they are valuable additions to our gardens—were Anne Laxton (raised by Mr. Laxton, of Stamford, one of our most earnest and accomplished rosarians), a Rose of good shape, and much improved by cultivation; Baron de Bonstetten, remarkable for its richness of color—deep crimson; Baronne Louise Uxkull, a large, well-formed, carmine rose; Francois Michelon, Le Havre, Lyonnais, Madame George Schwartz, Monsieur Etienne Levet and President Thiers. All these must be ordered by those who are forming a collection. And I should add to them Bessie Johnson, which, though seldom large enough for exhibition, is quite one of the prettiest, freest and most fragrant of garden roses.

Of this year's roses, Cheshunt Hybrid is very distinct and beautiful, both as to wood, foliage, and flowers, and will soon establish itself as a favourite in all rosaries. My namesake, Reynolds Hole, has also showed itself to deserve the description given of it last season as "an improved Louis Van Houtte," and needs no further praise. These two roses were raised by Mr. George Paul, of Cheshunt, who also exhibited on Saturday another seedling rose of excellent form and color, called "Wilson Saunders," much resembling Baron Adolpho de Rothschild and Charles Lefebvre in appearance, but reported by the raiser to be different from either in various important particulars.—S. Reynolds Hole, in *The Garden*.

# The Dairy.

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

## Making Cheese from One or Two Cows.

In an answer to a query, a correspondent of the *Tribune* tells how a Vermont woman makes the best cheese from one or two cows.

"Have a large tin pan or a brass kettle (on account a wooden vessel) in which to strain the milk at night as soon as milked, with no cooling or warming. Put in rennet sufficient to bring it in thirty minutes. Cut it carefully with a long wooden knife, and let it remain until morning, then put it to drain. Wash your pan, and proceed with the morning's milk as the night before. Carefully drain the curd so the butter will not escape with the whey. The curd can be kept two, three or four days by salting a little, and putting in a bag, hanging in the cellar, or some cool place.

"When the cheese is to be put in the press, cut it in thin slices and let it stand a few minutes in water heated to 104 degrees. Let it drain awhile, cut it in small pieces, putting a tablespoonful of salt to one pail, or twelve quarts, of milk. When taken from the press sew on a cotton cloth bandage. Butter thoroughly at first, turning and rubbing daily until cured. Every utensil with the cloths used must be well scalded and dried in the sun every day, or the curd will sour, and the cheese be hard and poor."

Another writer says that a friend whose cheese is better than much of the factory manufacture consents to his sending her method of making cheese from two cows.

"First place the rennet in about two quarts of water, and let it soak three or four days before using. Set the night's milk. In the morning skim it and strain the cream back into the milk. This is better than simply stirring it in. Heat this milk to the temperature of new milk, and add the morning's milk. The strength of rennet varies, but I would use one-half a teaspoonful the first time, stirring it thoroughly. Let it stand till curd forms. In one-half hour it should be firm enough to cut, and no particles of curd adhere to the knife. If not, add more rennet next time, or if it comes much sooner, use less. Cut the curd into squares of two to three inches, and let it stand half an hour, and cut again into very small squares. Place a cloth strainer over it, letting it rest on the curd, and as the whey rises above it dip it off carefully.

"When the whey is dipped off, heat some of it rather warmer than you can hold your hand in, but not scalding, and turn it on the curd. If too hot, the curd will be tough. Break the curd into small pieces, with the hand, so it will heat through thoroughly. Test the curd by chewing a piece, and when it squeaks it is heated enough. It is well to break the curd occasionally with the hand while dipping off the whey the first time, but must be done very gently. After scalding turn off the whey and salt the curd, using about one tablespoonful of salt to a pail of milk. Put this curd in a cool place.

"The next morning make a curd in the same manner. Cut the first curd into half inch pieces, turn on some whey to soften it, and let it stand until the second curd is salted, then mix the two curds thoroughly and put into the press. In one hour turn the cheese over. At night turn again. The next morning it will be ready to take out. To prevent flies troubling cheese, cap them. Take a strip of thin cloth an inch longer than the circumference of your cheese, and about two inches broader than its depth. Sew the edges together, and gather each edge by turning down once and whipping. Cut two round pieces the size of the cheese. The first time you turn the cheese, put on the band and fasten tight. Put one of the round pieces on the top, and the other on the bottom of the cheese, tucking the edges under the band. The cloth will press to the cheese, and flies cannot get under it. In cool weather milk more than twelve hours old can be used."

For the benefit of Western readers I will add that this lady's apparatus for cheese-making consists of a wash-boiler, a long, thin wooden knife, a hoop—a peck measure with the bottom taken out makes a good hoop—and a press made in the following manner: One end of a long pole is put through a hole in a shed; through the fence will answer. A box sets under the middle of the pole, and the cheese sets on the box. A few small blocks or bricks are placed on the cheese for the pole to rest on, and a pail of stones hangs on the other end of the pole.

## Stable Floors.

Upon the proper arrangement of the floors of stables depends much of the comfort of the stock and economy in saving manure. Nothing is more detrimental to the health of farm animals than foul earthen stable floors. They are saturated with liquid manure, they are always damp; an unhealthy mouldy smell constantly pervades them, and millions of the germs of possibly poisonous fungoid growths are constantly inhaled. It is no wonder that there are in consequence constant blood disorders, or bronchial or lung diseases. Besides, the appearance and the comfort of the animals are sacrificed, because cleanliness is impossible under the circumstances. We very early in our experience discovered this, and for many years were constantly experimenting to discover the best stable floor. There are two of which we can hardly determine which is the better. One of these is a double plank floor. The bottom plank is of hemlock—which is as good as any if kept dry, and is the cheapest—ten feet long and two inches thick, if for single stalls. This lower floor being laid is well saturated with hot gas-tar, and the upper layer of plank, also of hemlock, which, under these circumstances, is durable, and which does not become so smooth or slippery as oak or yellow pine, and is therefore safer, are laid upon it. They are first coated upon the under side with the tar, then laid so that the joints are broken and finally firmly spiked down. These planks should be 1½ inches thick, and 7 feet long. They form the bed of the

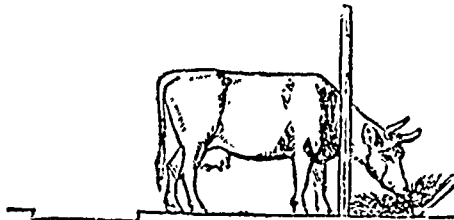


Fig. 1.—Wooden Floor for Cow Houses.

stall, of which 2½ feet are occupied by the feed trough, and 4½ feet give standing room for the cow. At the ends of this bed or floor of the stall is a depression 1½ inches deep, into which all the manure drops or drains. This may be made of any width that is desirable. When the stalls are single, two feet is a sufficient width, with a sidewalk of one foot wide. If the stalls are double, four feet give plenty of room. Figure 1 shows the profile of such a stall, with the lengths of the various parts, and the position of the stanchion, and that of the cow. The depressed portion of the floor should be kept well coated with gas-tar, and sprinkled with sand while the tar is hot. The tar is a great preservative of the wood. Such a floor is quite impervious to water, and is equally as good for a hog pen as for a cow stable. For horses, the floor should be laid with the best white oak, hemlock being too soft to stand contact with the shoe-caulks.

The other floor is the cobble-stone and cement floor. The floor being graded with a gentle slope or half an inch to a foot is paved with cobble-stones selected for evenness of size, and for their shape, which should be that of an egg, with one broad and one pointed end. The smaller end is laid in the earth, and the broader one uppermost. They should be well rammed down, and when the floor is laid, all loose sand is to be swept off from it. Figure 2 shows how the floor for a double stall should be made. The spaces are of the same size as those in fig. 1. The finishing of the surface is thus performed. One part of good hydraulic cement, and seven parts of sharp sand are well mixed dry, and then water is added sufficient to

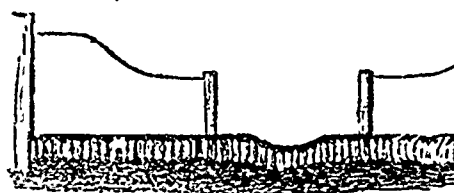


Fig. 2.—Cobble-Stone Pavement for Cow Houses.

make a thin mortar. This is quickly spread over the paved floor, and worked into the spaces between the stones with an old stiff corn broom. It is laid on thick enough to fill the spaces evenly, and with the broom a fair smooth surface is formed, through which only the tops of the stones are seen. A thin wash of pure cement is spread over the whole, and it is left to dry. The next day a coating of hot gas-tar is laid upon it until no more is absorbed, and fine sand scattered upon it. Then we have a floor which will last indefinitely, if only care has been taken to make

a solid foundation, and to ram the stones down solidly. It is entirely rat proof, dry, and therefore healthful. This floor is also pig proof, and suitable for hog pens which have nothing beneath them but the ground. It is obvious that this paved surface is solely a ground floor, and cannot be used over a cellar.—*American Agriculturist*.

## Box Stalls for Cows.

People who remember how their fathers used to tie up oxen and cows in stanchions, and who have seen these instruments of bovine torture banished at the dictates of humanity and their places supplied with chains are in a degree excusable for thinking that our present stable arrangements are all the most gentlemanly or most fastidious cow could desire; but those who stop and think a moment will see that there is cause for further improvement, in fact that the present practice of tying up cattle does not meet the requirements at all.

Cattle are naturally among the most cleanly of animals, fastidious as to their food, drink and lodgings. They never seek of their own accord a mud-hole to lie or to wallow in. Their toilets are made with their tongues, with which they remove impurities, comb their hair, allay irritations of the skin, and perform other offices. When they lie down they naturally spread themselves over considerable ground; when they get up they want room to do it in. But when tied up by the head, they are compelled to stand and lie in manure and filth, they are unable to reach many parts of their bodies with their tongues, they are confined in one position, can not lie down with comfort or get up without violation.

These considerations suggest that cattle should not be tied up at all, and we ask our readers who own few or many cattle and especially cows, and who can by any reasonable amount of labor arrange it so as to give each one an apartment by herself in which she can stand, lie, turn around and move about naturally, to do so and note the result.

It will surprise people who think that a cow don't mind having their sides plastered over with manure and filth all winter, to see how clean she will keep herself when she has a chance in a box stall.

Then in one a cow cannot hook or rob another; she will not strain herself getting up or reaching for food; she can lie down naturally and get up easily; can be fed to better advantage, milked with less trouble, and is better off every way. You who have barn room, try it and see.—*Mirror and Farmer*

## Washing Milk-Dishes.

I was somewhat exercised in mind by directions I lately read in a farmer's paper for washing dishes. The writer bids us wash our milk-pans, etc., first with boiling suds, then rinse them in boiling water, and then "wipe them with a damp cloth." She says she cannot tell the reason, but she finds that if tin things are wiped with a perfectly dry cloth "there is a stickiness left behind which soon becomes a sourness." I think I can tell her the reason. It is because the cheesy part of the milk has been scalded on the tin, and is only taken off (and but partially then, I am afraid) by the cool, damp wiping cloth. I think that most good housekeepers prefer to wash the milk-pans first in water below scalding heat. It is very common in good dairies to wash them first in cold water (which does not remove the cream), then in hot suds (which does), then in a clear hot water rinse, wiping or setting them in the hot sun. Since reading the article referred to, I have tried it many times, and have never found that the cleanest and driest of wiping-cloths left any stickiness behind; but I never wash dishes in scalding water. I see people pile their dirty dishes into the dish-pan and pour boiling water over them, and I feel sure there will be some "stickiness left behind." Warm water, but below the scalding heat, is best, unless your dishes are soiled principally by fat and butter. Everything but grease scalds on instead of off.—*Agriculturist*.

The *Rural New Yorker* mentions an individual who puts down his Winter's milk the same as some people lay in vegetables, etc. He bottles a lot of milk in the Fall, heats them to the boiling point, then corks the bottles and covers the corks with wax.

REMARKABLE BUTTER YIELD.—*The Live Stock Journal* is informed by a lady in North Buffalo, N. Y., that a heifer coming in when 22 months old made 335 pounds of butter in 11 months—or one pound per day. If this statement is true, this is, all things considered, the most remarkable yield we have ever known reported.

Butter from the Store.

Farmers and farmers' wives and their female help are very often taken to task for making and disposing of poor butter. Many may be thus blamed rightfully, but that the blame lies here in all cases I am fully convinced, from experience, is not the case. Butter, we all know, is an article very sensible to outside influences, colors and taints, from whatever it may come in contact with. Now how does Mr. Retail Store Keeper manage with his butter? I would not here intimate that all retailers are alike, or that the course I here intimate is general, but that some do, and that they are considered first-class ones, too, is too painfully true. Here is a single case. A friend of the writer, wanting some butter for family use, went to one of the first-class village stores and procured some; what was the horror of his house-keeper, when she opened the pail in which it was brought in, to perceive a strong kerosene odor, and upon tasting, there was that same unmistakable kerosene taste! The butter was firm butter, and evidently, aside from this taint, a good article. How did this butter acquire this odor and taste? Near by, in the same apartment, was kerosene casks and other vessels, and kerosene was measured out here, as well as much other merchandise; the butter was turned out of the tub on to a platform and covered over with paper or some like light material, and from this cut and dealt out. What wonder that, under such circumstances, butter should contract unpleasant smell and taste? Retail dealers, frequently, are dealers in general merchandise, groceries, &c., and not sufficiently careful in dealing out their butter; often go from the molasses cask, potato bin or kerosene cask to the butter tub, if they are not all kept in the same apartment with many other odorous articles, and then the consumer puts all blame upon the poor, innocent farmer, who made the "poor stuff" and sold it for good butter. The poor farmer, butter-maker, has sins and short-comings sufficient to shoulder without having to answer for the careless groceryman and general retailer; so please not add thereto by asking him to share others' faults. — *Country Gentleman.*

Brucefield Cheese Factory.

We notice by the *Seaforth Expositor* that a meeting of the patrons of this factory was held recently at that place, the object of the meeting being to receive from the manufacturer, a statement of the season's business. This factory will be carried on in future by Mr. Brownlee, Mr. Hickson, its former proprietor, having sold out to this gentleman. The following facts may be of interest to some of our readers, and give them an idea of the manufacture of cheese:—

In May, and June, 613,339 pounds of milk were delivered at the factory, and from this quantity of milk, 50,005 pounds of cheese were made. It took 19.53 pounds of milk to make one pound of cheese. In July and August, 654,395 pounds of milk made 59,225 pounds of cheese, and it took an average of 10.74 pounds of milk to make one pound of cheese. In September and October, 591,255 pounds of milk made 52,553 pounds of cheese, averaging 9.35 pounds of milk to make one pound of cheese.

The total value of the cheese manufactured during the entire season was \$17,337.42.

The largest patron to the factory was Mr. Alexander Proctor, of Tuckersmith, who delivered 41,379 pounds of milk, receiving therefor \$367.

Butter for Winter Use.

It may not be a bad idea to suggest that butter made in the fall is not only superior in quality, but much cheaper than that which can be procured in the winter; hence the propriety of packing away carefully at least a few jars or tins of scarcity. There is a very good recipe for preserving the sweetness of fresh butter by means of brine, but experience convinces us that however fine the brine, the great art consists in perfectly excluding the air. Tie up really fresh, well-worked rolls of butter in separate pieces of muslin, pack the jar very nearly full, pour on the brine, and then weight down with clean stones so as to keep the butter entirely submerged.

The following is a good and efficacious recipe for packing away without brine:—Half a pound of salt, a quarter of a pound of white sugar. Pound these ingredients together, and put on ounce to every pound of butter as you take it from the churn, packing and working it just as with the salt alone. Seal the jar for at least a month after being prepared. — *Herrick and Howe.*

TO MAKE A COW GIVE DOWN HER MILK.—An old woman says that a simple and sure way to make a cow give down her milk is to lay a chain gently across her back when you are milking her.

Agricultural Chemistry.

Varieties of Soil.

As a report of the analyses of a few local specimens of soil may be of some interest to the agricultural community, I herewith transmit the results of three analyses, two of which were made during the summer and the other recently.

No. 1.

This consisted of two portions, the surface mould and the subsoil, obtained from a swamp in Sarawak Township, on the line of the Centre Road. One thousand grains of the first portion yielded:—

Organic Matter	553	grs.
Insoluble do	276.5	"
Lime	10	"
Magnesia	5.5	"
Potash and Soda	12	"
Oxides of Iron and Alumina	1.0	"
Phosphoric Acid	trace.	"
Sulphuric do	13	"

The same quantity of subsoil contained:—

Organic Matter and Water	80	grs.
Insoluble Silicates	791	"
Carbonate of Lime	85	"
Magnesia	2.5	"
Potash and Soda	4	"
Sulphuric Acid	3	"
Phosphoric do	1	"
Oxides of Iron and Alumina	110	"

The latter specimen was a tenacious yellowish white clay, with here and there a greenish tinge, from the presence of ferrous sulphate (green vitriol). The surface specimen was strongly acid, and exhaled a pungent vapor on the application of heat, arising from the presence of sulphides. It may be remarked, for the information of those unacquainted with the method of analyzing soils, that the specimen is always dried at a heat of 212° F. before investigating its constituents, in order that the uncombined water may be driven off. The subsoil lost, in this case, one-tenth of its weight.

These figures show that the soil in question contains an excess of clay, water, protoxide and sulphate of iron, and the ingredients of the humic acid series. On the other hand they exhibit a deficiency of phosphoric acid, lime and potash.

The indications deduced from this analysis are, to remove the excess of water by drainage, to subject the substratum of clay to the mellowing effects of the atmosphere and frosts, and in so doing to convert the protoxide of iron into a peroxide, to supply the deficiency of lime, and by this means also to correct the sourness of the surface; lastly, a due supply of phosphoric acid and potash are to be provided by means of proper composts.

One has only to see the shallow foothold obtained by the forest trees in such regions, in order fully to appreciate the powerful obstacle formed by the underlying clay to the development of the tap roots of cultivated plants.

No 2

This specimen was obtained at a depth of six inches, from a deserted farm near Hepworth P. O. Co. Grey. The analysis gave the following results:—

Silica	900	grs.
Alumina	20	"
Lime	none	"
Magnesia	3.5	"
Potash	2	"
Soda	1.5	"
Oxides of Iron and Alumina	13	"
Lime	2	"
Magnesia	trace.	"
Potash	3	"
Soda	none	"
Phosphoric Acid	trace	"
Sulphuric Acid	1	"
Organic Matter	10	"
Moisture	43	"
Loss	1	"
	1000	"

We may imagine that the history of this case is, that the first crop of roots has been raised after clearing the land, thus diminishing the already small quantity of potash; then a grain crop has been tried and, of course, proved a failure on account of deficient moisture, lime and phosphoric acid; the occupant has then left in disgust. It is evident from its composition that such land would require the investment of a capital in manures far heavier than the pioneer settler can afford. The course necessary to pursue in order to render a soil of the above composition productive, has been pointed out in a former article.

No. 3.

This specimen was a well pulverized yellowish loam blackening when heated, and effervescing with muriatic acid (spirit of salt). It was obtained from the garden of a gentleman living in this place. Some small pieces of charcoal, arising, probably, from a former application of ashes, were excluded from the analysis. One thousand grains dried at 212° F., and exposed in an open shed for twenty-four hours, increased in weight 17 grains, an evidence of a favorable amount of absorbing power. Such a soil is benefited by lime, ashes, and mixed manures; but the proportion of the former material should be somewhat less than is proper for field purposes. For we have seen that its effect is somewhat to diminish the solubility of certain compounds, and at the same time to render their effects more gradual and permanent. The chief aim in such circumstance, where the ground is devoted to garden purposes, will be, to have constantly on hand for incorporation with the earth, such manures and composts as contain the ingredients removed during the development and growth of the various garden products. Especially must the supply of potash be kept up in parts which are intended to bear such roots as turnips, carrots, and beets. The application of liquid manures, and the practice of the Chinese system, in some degree, are particularly serviceable as regards gardens.

G. M. SMITH.

Owen Sound, Dec. 5th, 1873.

A LOCAL KNOWLEDGE OF FARMING.—There are truths that apply to all soils. But there are also truths—and they are many—that apply only to localities, and these differ according to the locality. Hence book knowledge has only a general application. There must be a knowledge of the particular soil worked. This can only be acquired by practice—by working the soil and noting its effects. Analysis will acquaint us with the material of which the soil is composed. Yet there is something beside this that is important; some of this is known, and some is entirely in the dark. Who knows, for instance, what causes the superior quality of tobacco raised in some soils apparently the same as the contiguous land, which produces an inferior kind? This is common in the island of Cuba, where our best tobacco is grown; also an inferior quality. So, eminently, with grapes. The same grape does much better in some sections than in others independent of the climate. The grapes of some sorts will also grow luxuriantly but bear little in some sections, in others do remarkably and uniformly well, improving the quality. There is some element unknown that has an effect. All this, and much more that might be said on this head, shows that a soil, in order to know its capacity, must be tested. Hence a local knowledge of farming is indispensable to success. Books point only in a general way. A complete science of agriculture requires a knowledge of all the localities, as science is the result of knowledge. It will, therefore, be seen how much there is to do for the farmer; he must rely upon himself, see and note accurately. I have seen this beautifully illustrated in cases that I know of. Only the best heads are the best farmers, and these not necessarily the best educated, but always and necessarily those having the best acquaintance with their soil. The two, a local and a general knowledge combined, are the highest requisite. Then thorough work, and success is assured, making farming a safe, a profitable thing, as well as a very pleasant and agreeable occupation. — *F. G. in Country Gentleman.*

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## The Canada Farmer.

TORONTO, CANADA, DECEMBER 15, 1873.

### Country Manners.

Good manners are pleasing whether in town or country, while rough, unpolished behavior is disagreeable everywhere. Occasions are constantly arising for the display of politeness or its opposite. Strangers may either attract or repel one another. At every turn in the path of life, opportunities present themselves for the exercise of courtesy and kindness. True politeness is benevolence in little things, and much may be done toward the diffusion of general happiness by what the late William Wirt was wont to call "the small, sweet courtesies of life." A lady and gentleman passing each other in a crowded city street, their apparel became entangled, a hook in the lady's outer jacket catching in a button-hole of the gentleman's coat. It took a few moments to effect a disentanglement. "Madam," said the gentleman, "I am attached to you." "Sir," replied the lady, "the attachment is mutual." Both wended their way, after the transient stoppage, feeling better for the trivial accident, because of the polite pleasantry it had occasioned.

Good manners are useful also. They pave the way for acquaintanceships and friendships from which much benefit may accrue. They are helpful in the transaction of business, for who would not rather deal with a gentle person than with a bear? Many a fair bargain has been spoiled, and many a promising business injured, by ill manners. "Good words are worth much and cost little," is a wise and profitable commercial maxim. Nothing is ever gained by rude and unpolite ways. No one has a right to tax the forbearance of others by want of courtesy. Many persons rather pride themselves on their independence of polite rules, and their contempt for etiquette, but it is neither a credit nor a help to them. There may be a kind heart beneath a rough and coarse exterior, but people in general prefer that a kind heart should be wedded to a kind and pleasant behavior. Some one has remarked, that politeness is like an air cushion; there may be nothing in it, but it eases the jolts of life wonderfully. Good manners prepare for all positions and circumstances; put people at ease in all companies; they are never out of place, can be

carried everywhere without any trouble, and are of use in all the relations of life.

Good manners are a universal duty. They are made such not only by public sentiment and the common consent of mankind, but by the constitution of human nature, and the necessity of things. They form the lubricating oil of society, and without them there will inevitably be unpleasant and hurtful friction. Some look upon them as a vain and worthless accomplishment. This may be true of certain unmeaning, fashionable forms, but it is not true of genuine politeness. This is perfectly distinct from mere etiquette, and may be displayed by those who have never been schooled in gentility. A lady meeting a drove of cattle on a country road in winter, was compelled to step off the beaten track into the deep untrodden snow. As the driver passed her, he said as he touched his hat, "if my cattle knew as much as I, they would not make a lady go out into the deep snow." That was true politeness. So also was the Irishman's remark, when he was thanked by two ladies for giving up a seat in the cars to them, "sure an' I'd ride on the cow-catcher to oblige two such jintlemanly ladies." There is a contempt and disregard for good manners manifested by many, for which no apology or excuse is admissible. In this enlightened age and christian country, multitudes appear to be quite oblivious of the fact that the highest standard of human duty, that to which all profess reverently to bow, contains, among other injunctions, this one, "Be courteous." The command, "Thou shalt not steal," is not more authoritative, nor more universally binding.

We have often wondered that country manners should be so rude and rough as they too generally are. Exceptions to this remark may easily be found, for many rural homes are "graced with polished manners and good sense," quite as much as the best town and city homes, but that the farming community as a class, is very deficient and neglectful in this direction, cannot be denied. One reason for this no doubt is the associations and influences of early backwoods life. But to a great extent all this has passed away. Yet it is no rare thing to find farmers' families possessed of every comfort and many luxuries, riding to church in their carriage, and with a fine piano in their parlor, who can put in no claim to politeness, and are scarcely civil to one another or to strangers. The head of such a family not long since said to the writer when in the country on a certain public occasion, "you can go home and stop with us if you want to." It was meant as a kind invitation, and in the conviction of its being so meant, was accepted gratefully. But, "we shall be happy to have you stay at our house," would have sounded much better in the ear, and struck pleasanter chords in the heart. We once took dinner at the house of a wealthy farmer. Three hired men and the servant girl sat down with us. We knew that our host considered Jack as good as his master, and was "down" on all aristocratic pretensions and ideas, but we were hardly prepared to see him serve, as he did, the three hired men before the guest. No leveling theories can make such an act other than discourteous and ill-behaved. Dining at a farm-house one day last summer, the fare, with the exception of a single dish, was not very tempting. Cold, fat pork, potatoes, bread, butter and a bowl of wild strawberries and cream, were set before us. "Help yourself" was the rough-and-ready, though kindly-meant invitation. Of course all began on the cold fat pork and potatoes. All helped themselves, down to the youngest child. The eldest boy, a strapping lad, some fifteen years of age, hastily bolted his first course of pork and then seized the bowl of strawberries and cream, helping himself liberally. The juvenile churl actually made such fast time, that he got a second serving of the delicious dish before any body else obtained a taste of it. And the parents looked serenely on, saying

never a word. We could multiply illustrations of rude country manners to almost any extent. "Rax me a piece of that bubblyjack," said an ill-mannered Scotchman to us once at a dinner-table. We were puzzled at what might be the meaning of the first and last words of the sentence, and when we found that the interpretation was, "reach me a piece of that turkey," we were annoyed at his abrupt and unpolite behavior. "Take off some bread," "reach your cup for some more tea," "I don't wish any more;" "What?" "Eh?" and the like, are among the commonest utterances in country society, causing a constant grating on "ears polite." Such things may often be met with in town and city society, but no locality can redeem them from just condemnation.

We hold that there is nothing about country life necessarily tending to roughness and rudeness, nay, rather that communion with nature tends to soften and refine. Books, newspapers, periodicals of all sorts, music, sewing-machines, photograph albums, pictures on the walls, fashion plates, fine clothes and all kinds of tasteful things, are now finding a place in country homes. Let good manners find a place there also. Parents ought to awake to this matter. If they are deficient themselves, it is never too late to mend, and there is no good reason why they should leave their deficiencies as a legacy to their children. Country school teachers should aim to train their pupils in good manners. They, too, may possibly need first some training themselves. Our Normal Schools and country boards ought to rank politeness among the qualifications on which certificates are granted. Nor should this subject be omitted from the teachings of the pulpit, since, as we have seen, it is not omitted from the teachings of the Bible.

### Ontario Agricultural College.

Considerable progress has been made during the past few weeks in fitting up the main building on the Provincial farm, for the accommodation of students, and the Government expects soon to be able to fix the time for opening the institution. For some months past much thought, investigation, and discussion, have been going on as to the system on which the institution shall be conducted. The conditions on which the pupils shall be admitted, the extent of literary and scientific instruction to be given; the number, and character of officials to be employed; and numerous other questions deeply affecting the future success of the enterprise, have received earnest consideration. Naturally enough, a great variety of views have been suggested, and to avail themselves of every means of arriving at a wise conclusion, we now learn that an Honorary Commission has been issued by Government to a number of well-known gentlemen deeply interested in agricultural and educational matters, inviting them to consider the whole subject of the future organization and management of the institution, and report without delay. We understand that among the gentlemen composing the Commission, will be found the names of the Commissioner of Agriculture; the President of the Provincial Agricultural Association; two ex-Presidents of the Provincial Agricultural Association (Hon. Messrs. Christie and Skead, we believe); Hon. George Brown; the President of University College, Toronto; the Senior Inspector of Grammar Schools, for Ontario; and the Secretary of the Provincial Horticultural Society, Dr. Beadle, of St. Catharines.

### Illustrated Annual Register of Rural Affairs.

This valuable, we may say, invaluable compendium of agricultural, horticultural and domestic information, for 1874, published by Luther Tucker & Son, Country Gentleman office, Albany, N. Y., at the low price of thirty cents, is on our table, and we have pleasure in commending it to our readers as one of the largest investments they can make with a very small amount of money. This is the twentieth yearly

number of this standard rural annual, and the publishers state in advertising it, that it has "become an established favourite in thousands of rural homes in all parts of the country." We are glad of it, for no home, rural or urban can afford to do without it, or fail to be improved by it. The present number contains chapters on the following topics, illustrated by about 150 engravings:—Cooking food for animals, Roses and their culture; Designs for barns; Outdoor floral decorations; Bulbous flowering plants; Notes on fruit culture; Suggestions in rural economy. Accidents and emergencies; Ornamental planting; Great sale of the century; The farmers' register, revised to Nov. 1, 1873. The entire set of this excellent annual can be had from the office of publication, and we do not know where so valuable a rural library can be obtained at a cost so trifling. This *mulum in parvo* serial is, we believe, now kept in stock by a number of Canadian book-sellers.

#### "Murray's Perfect Horse."

Under the above heading, "Hark 'omstock," a noted horse authority, is reviewing in a series of articles in the *Country Gentleman*, a recently published and much-praised work by Rev. W. H. H. Murray, a Congregationalist minister, of Boston, entitled "The Perfect Horse." Mr. Murray is getting some hard knocks from his critic, and by the time the reviewer lets go of him, will probably feel like writing a sermon on the text, "A horse is a vain thing for safety," making special heads of discourse on the dangers of riding the animal, and of writing books about him.

#### Ontario Veterinary College.

Attention is invited to the advertisement of the above institution, which will be found in our present issue. It will re-open on Monday, Jan. 13th. The examinations for the past session have just closed, and the results of them will appear in our next.

The *North British Agriculturist* announces the death on Tuesday of Mr. Robert Walker, of Portlethen, Kincardineshire, in his 70th year, well known as an extensive stock-breeder and exhibitor. He had been in failing health for some time.

**SAWDUST AS MANURE.**—A correspondent wishes to know the value of sawdust for manurial purposes. Thoroughly dried, and used as an absorbent of liquid manure, it is of considerable value, but not otherwise, except as a loosener to mix with stiff clay soils, and for that purpose, and admixture of sand is more permanently useful.

A NEWSPAPER correspondent calls attention to the great convenience that would follow if farmers would generally have their names painted on the gates at the entrance to their premises. Strangers often have much difficulty in finding the residence of persons of whom they are in search, which would be obviated by this course. The name may be neatly painted on a slip of tin six or eight inches wide, which could be easily tacked on the gate.

**THE LIVE STOCK BUSINESS.**—But few readers know the amount of business done at the cattle yards at West Albany, N. Y., every week. On an average, about 6,000 head of beef steers, 8,000 sheep, 800 cows, and calves, 100 horses, and 20,000 hogs, are fed and watered. Usually all the stock changes hands here being sold to New York, and Eastern men, or local dealers. Under the latter head are included butchers from surrounding cities and villages within a radius of one hundred miles, as well as city butchers. From one hundred, to one hundred and twenty thousand dollars are exchanged for stock every week. A large hotel, with a telegraph office attached, and over two miles of sheds and yards, besides an immense barn, are devoted to the accommodation of dealers, and their stock.

## Agricultural Intelligence.

### Mr. Arch at Bow Park Farm.

The correspondent of the *Daily News*, who accompanied Mr. Arch on his tour through this country, thus chronicles in that journal the visit to Bow Park Farm—

"Having received an invitation to visit the celebrated model farm of the Hon. George Brown, the proprietor of the *Globe* newspaper, we left Toronto in the morning, and after a ride of some 60 miles by the Great Western Railway, reached the town of Paris. Here a grand agricultural show was being held. These shows appear to be quite an institution in this flourishing Province. We have already attended three or four of them, and from the numbers present, and the extensive display of native products, I take it that their value and importance are pretty well understood by the thriving husbandmen who constitute the main population of the country. After spending an hour or two in the show, and experiencing once more something of the astonishment with which we first beheld a fine display of the fruits, vegetables, and cereals which this prolific soil produces, we accepted an invitation to lunch with the Mayor of the town. This gentleman, who, like everyone else here, is a self-made man, is the owner of extensive flour mills; and we met at his beautiful villa some of the leading men of the district. Each one had his story to tell of early battling with adverse circumstances, and victories won. Mr. Arch found in the foreman of our host an old school-fellow. He had been in Canada about a quarter of a century. Like every other honest and industrious emigrant, this Barford man had done well. He had bought his own house—a house worth some 200*l.*—and had, perhaps, a couple of thousand pounds out at interest. Thus, side by side were flourishing both master and man. In the afternoon, accompanied by one or two of Mr. Brown's friends, we started for a ten mile drive to Bow Park. Our road lay through what must, I think, be called the garden of Canada. All the farms appeared to be, unlike those of the Quebec province, which we first went through, in a high state of cultivation. "Yonder," said a gentleman by my side, a brother Senator of Mr. Brown, "is my farm of 500 acres. I bought it 30 years ago, at 40 dollars an acre; and to-day I should want as many pounds an acre for it. Over yonder," at another point, he said, "is a farmer who came out 20 years ago without a cent in his pocket, and now he has 200 acres of as fine land as is to be found in Canada." Passing by a rather dilapidated looking farm-house, I remarked on its exceptional appearance. "Yes," said my companion, "the man drinks." This seems to be almost the only impediment to a settler's progress here, but I have previously remarked on the happy rarity of this vice in Canada. We have not seen a single drunkard. One of the causes of this happy state of things is, of course, the clear, bracing climate; but another is undoubtedly the general discouragement of the habits of drinking strong liquors in the homes of the people. For instance, at the Mayor's table yesterday, iced water and delicious coffee might be had, but neither wine nor ale. At the hotels few drink anything at dinner stronger than tea or coffee, and it is a universal practice to serve these up at the dinner-tables of private individuals.

"After a delightful drive of an hour and a half, passing on our way through the flourishing town of Brantford—a place of about 10,000 inhabitants, and the county town of the "Brant" district, so named after the celebrated Indian "Brant"—we reached the point towards which we were tending. Bow Park Farm contains 900 acres, all of it, with the exception of the reservations for ornamental timber, under high cultivation. The farm is nearly surrounded by the Grand River, and the soil is alluvial deposit of the most fertile character. The energetic proprietor purchased the estate some few years ago, and has invested a very large capital upon it. Commodious buildings have been erected, one barn alone being about 250 ft. long by nearly 50 ft. broad. There are about 400 head of high-bred Short-horns in the stalls, and no expense is spared in replenishing the stock with the best breeds. The situation of the farm is highly picturesque, and Mr. Brown, like Mr. Mechi, is confident of reaping a pecuniary success, although he has taken to farming as a recreation. It took us the whole morning to go through his extensive range of cattle sheds, and certainly it was a grand display for so young an establishment. A catalogue of the stock, with full details as to pedigree, &c., was placed in our hands; and at the annual sale,

which will be held next week, Mr. Brown expects purchasers from England, Scotland, and all parts of the United States. Not the least interesting part of the exhibition—for such, in truth, the farm is—was the show of Berkshire pigs. It will be gratifying to Berkshire farmers to hear what Mr. Brown said in answer to my inquiry as to whether he had any other pigs. "Of course not," was his reply, "what's the use of having any but the very best?" Some of the thorough-bred Short-horns of Mr. Brown's herd would have won the applause of the severe critics of the great English agricultural shows, and doubtless many of them will yet pass under the review of those gentlemen, as Mr. Brown contemplates a considerable exportation of them to the parent country. It would seem that the climate, or feeding, or something else of Canada, vastly improves the breed. Hence the fabulous prices realized occasionally.

"It has again and again been asked me by Canadian agriculturists, 'Why do not some of your farmers come out here and buy the cleared farms which are always in the market?' The question is easier asked than answered. Certainly it would be the best thing they could do, provided the conditions of success were complied with. One of these is a year's servitude under a good Canadian farmer. Intending emigrants of this class may take this hint as an all-important one. Whenever it is not acted upon, it matters little what may be the capital at command, failure will be the inevitable fate of the farmer. On this there is a marvellous consensus of opinion throughout Canada. 'Did you notice that young man?' said our host, as we were passing along his farm buildings, 'he is an educated gentleman. He and another Eton lad are with me to get a thorough knowledge of farming. They live and work with the other men, and are in every respect just like the rest.' The 'gentleman' was merged in the 'working man.' As Mr. Brown sentimentally remarked, 'He's all right.' Yes, his success is tolerably sure. By and by he will have served his apprenticeship, and then with his two or three thousand pounds capital he will repeat, on a small scale, the splendid success of those young gentlemen who are hanging about their father's halls in England, trusting to the chapter of accidents, would just follow the example of these young Etonians, they would experience the new sensation of independence.

"After a pleasant day among these high-bred cattle, and the picturesque meadows in which they grazed, we took our reluctant departure for the city of London."

#### A Chicago Pork-Packing House.

A correspondent of Moore's *Rural New Yorker* gives the following account of a visit to one of the largest pork establishments in that wondrous city—

While on my way from New Hampshire westward, I found it convenient to stop at Chicago. Having visited the principal packing-houses in the city, and learned their *modus operandi* of taking the porkers from their living state, and converting them into the frying and boiling state, and being very much interested in their manner of procedure, I thought it might be equally interesting to the other members of the Rural family, who, like myself, only annually indulge in this unpleasant occupation for a limited period of time.

The principal firm in the city, under the firm name of the heading of this article, is situated near the Union Stock Yards, and employs about 1,000 men in their two houses; 650 in one, and the remainder in the other establishment. During the packing season, and in favorable weather, the above mentioned number of workmen daily seal the doom of 6,000 hogs; this making an average of six hogs for each employe to kill, dress, salt, cure, and pack. But this is more than is usually done, for the packing and curing season lasts much longer than the killing.

The piggy's first impression of this place cannot be very pleasant, for as soon as he is unloaded from the cars, he is hooted and whipped from one division of the yard into another, and another, until he arrives at the footstool of his final destiny, here, in small squads, they are driven up an inclined plane. If he is a cripple, or adipose porker, he ascends by means of an elevator, where he is shut off from his fellow porklings into a small pen, where a short chain is unceremoniously wreathed around one of his hind legs, and between the twinklings of his eye, he is suspended in the air, and moved along on a pulley so arranged that, after sticking, which is performed by two persons, he drops, head foremost, into the scalding tank, where his bristles are seized with the avidity that hungry wolves devour an unguarded portion of a caravan's rations, and he is constantly

turned over until he swims the length of the 20 feet tank, where he is taken upon a set of forks that raise his carcass to a table; here it is scraped, and all the hair and bristles removed, when it is again suspended, the head taken off, and given to a party whose duty is to finish dressing it; the intestines are put into tanks, and the fat detached from them.

Up to this time the operation of "takin' notes" is anything but pleasant to one who shrinks from flying blood, mud, or manure. But to return to the unctuous meat which was left suspended by the cords of the hind legs. The carcass is moved along on rolling trucks, being treated, in the meantime, to a bath of clean water, after which ablutionary exercise the two sides are cut apart, and run around on the truck pulleys to a cooling room to remain undisturbed for thirty-six, or forty-eight hours. In moderately cool weather, and when business is very driving, they are allowed to remain only twenty-four hours, when, as is also the case, if allowed a longer time to cool, they are taken down, wheeled to the cutting benches, the head, feet, and hams are cut off by two men, whose sole business is to do this work, and they make short sides, hams, shoulders, and neck-pieces in about the same time that a New England farmer would convert a small sized, soft-wood limb into stove lengths. The spare-ribs being taken out, the long or short sides, as the case may be, are trimmed, the hams and shoulders are subjected to the same operation, and then sent to a lower floor through a sluice-way, where they are assorted and salted.

The spare-ribs are sold immediately, and the feet are usually purchased by glue manufacturers. The small trimmings are converted into sausage, when the cleansed intestines are generally brought into requisition. The fat trimmings, and adipose portions are melted into lard in large tanks kept hot by engines. After being melted, it is drawn out into cooling tanks, constructed similar to the most approved sugar evaporators, placed under constantly moving fans to facilitate the process of cooling. When sufficiently cooled, the melted lard is turned into barrels, and is then ready for shipment. Many of the packing-houses barrel the lard without allowing it to cool, and some of them sell their sausage meat and hams fresh.

Having followed some of the corpulency of his pig-ship up to marketing, we now return to the sides, shoulders, &c., as they come through the sluices from the upper floor. The trimmed sides and shoulders are first rubbed over with salt, then put up in piles from 4 to 6 feet in height, with layers of Onondaga or Liverpool salt, where they are permitted to remain five or six days before overhauling and subjecting them to another rubbing over with salt. This overhauling is repeated three or four times, when they are retrimmed, cleaned, weighed, and pressed into boxes, containing, on an average, from 520 to 540 lb., in which it is shipped to market.

The greater part of the packing-houses do not smoke any hams, selling them fresh at present; but some are intending to erect smoke-houses, in addition to the packing-houses.

Prehistoric Culture of Flax.

Dr. Oswald Heer, the eminent botanist, and one who has devoted so much attention to the structure and history of fossil plants, publishes an article on flax, and its culture among the ancients, especially the prehistoric races of Europe. His memoir may be summarized as follows: "First, flax has been cultivated in Egypt for five thousand years, and that it was, and is one of the most generally diffused plants of that country. It occupied a similar position in ancient Babylonia, in Palestine, and on the Black Sea. It occurred in Greece during the prehistoric period, and at an early date was carried into Italy, while its cultivation in Spain was probably originated by the Phœnicians and Carthaginians. Second, it is also met with in the oldest Swiss lacustrine villages, while, at the same time, no hemp nor fabrics manufactured from wool are there to be found. This is considered a remarkable fact, since the sheep was one of the oldest domestic animals, and was known during the stone period. The impossibility of shearing the fleece by means of stone or bone implements is supposed to have been the reason why woollen fabrics were not used. It is thought probable that the skin, with its attached wool, was probably made use of for articles of clothing. Third, the lake dwellers probably received flax from Southern Europe, from which section fresh seeds must have been derived from time to time. The variety cultivated was the small, native, narrow-leaved kind, from the coast of the Mediterranean, and not at all like that now raised in Europe. It must, therefore, have been cultivated also in Southern Europe, although Dr. Heer could not ascertain among what

people, and at what age this took place. If this could be ascertained, it would be an important point in the determination of the antiquity of the lake-dwellers. Fourth, at the time of the empire, both summer flax and winter flax were cultivated in Italy, as now, but in what form it was grown in ancient Egypt, is not determined. It is thought probable that the narrow-leaved variety was first introduced, and after that the Roman, and then the common varieties followed. The common plant has, doubtless arisen from the cultivation of the narrow-leaved, while the Roman winter flax, and the *Linum catharticum* constitute the intermediate stages. The original home of the cultivated flax was, therefore, along the shores of the Mediterranean. The Egyptians had probably cultivated it, and from them its use was doubtless disseminated. It is possible that the wild variety and the winter flax were grown elsewhere at the same time, when the cultivated variety had long since driven them out of use in Egypt. — *Nature*.

Short-horn Intelligence.

A large company at Childwick Hall, on Wednesday, and weather all that could be desired, combined to raise expectation of a tolerably good sale. Above all, the cattle generally, were of a creditable class, the young stock looking especially well. Lord Verulam presided at the luncheon, and the sale was conducted by Mr. Thornton. Mr. Fawcett announced his intention to sell every animal except Athelstane, upon whom he placed a reserve price of two thousand guineas. There was, however, a reserve of fifty guineas upon Lot 1, a blind cow, and, no advance being offered, she was passed; so likewise was Athelstane. For the other lots the bidding was brisk. The Earl of Ellesmere bought up all the four Brampton Rose females, at an average of 131l. 5s., for two of them giving 100 gs. each, and for the other two 150 gs. apiece. The Katherines, 8 in number, 3 of them calves of this year, averaged 98l. 14s. each, thus showing the value of Booth blood, even in what is called "a parvenu family," and with some alloy of strains not very distinct in blood, however excellent. The herd of 17 averaged 68l. 2s. 9d.; 12 bulls made 35l. 17s. 6d. each; and 35 cows, and heifers, made an average of 79l. 3s. 5d. Good and useful sorts are not yet crushed out of the market by predominating fashion.

On Thursday, Mr. Thornton disposed of the 46 Short-horns offered by Mr. Marsh, and Mr. Fowler, (of Henlow) at Little Olney, near Hitchin. The company was not quite so large as at Mr. Fawcett's, but a goodly attendance nevertheless, and there was very eager competition for the best lots. Several were not in calf. The 38 females averaged 31l. 1s., and the 8 bulls 20l. 1s. 3d.; the 46 of both sexes, 31l. 12s. 3d. This sale is an instance of the increase of value in a herd when three or four good bulls are used in succession upon common dairy stock. The offspring of Mr. Marsh's original cows, by bulls of their own class, could scarcely have been expected to realize within say 15l. a head of the prices obtained on Thursday (taking young calves and non-breeders into consideration); and in addition to the extra prices at the sale, the annual drafts of two year old bullocks (last year's averaging 33l.), and occasional other private sales at prices beyond the current value of ordinary market stock, should be reckoned to the credit of the well-bred bulls selected by Mr. Marsh. The total profit derived from such sires, used instead of common bulls, must be very great indeed. — *Bill's Weekly Messenger, Monday, Nov. 5.*

The Fruit Crop in England.

From our fruit reports kindly furnished by correspondents in various parts of the country, and which will be found in detail in our present issue, it appears that this season apples are, in general, an abundant crop; pears only middling, plums under the average, but abundant in some parts of Leicestershire, cherries thin, except Morellos, which are a full crop everywhere, peaches and nectarines a very poor crop, except in Leicestershire, where they are plentiful; apricots a total failure almost everywhere, the wood not having been properly ripened last autumn in consequence of the heavy rainfall, a remark which also applies to peaches and nectarines, and indeed to many other kinds of fruit trees. Bush fruit—that is gooseberries, currants, and raspberries—very fine and abundant everywhere; strawberries heavy crops, and the fruit of fine quality; nuts and filberts an irregular crop, good in some places, bad in others; figs generally good; walnuts generally a deficient crop, but extra heavy in Lincolnshire; grapes on walls good; damsons an entire failure almost everywhere, but in Worcestershire very plentiful in one or two places. — *The Garden*.

Canadian Cheese in British Markets.

From Scotch papers of recent date, we are pleased to learn that Canadian cheese are not only attracting some attention, but beginning to occupy a high position in the markets of Great Britain. This is particularly noticeable at the great annual cheese fair held lately in the west of Scotland. The number of entries was unusually large, upwards of thirteen hundred of the most famous dairies of Scotland and England being represented. The judges were selected from the most experienced cheese factors of the Kingdom. Thus the specimens of Canadian cheese were placed alongside of the very finest cheese produced in the world, and were tested by those who are most capable of forming an opinion as to their merits. It is interesting, therefore, to notice the remarks of Mr. Copeman, of the firm of Yeats, Acocks & Copeman, of London, who with the concurrence of the other judges, expressed himself as follows:—"The general quality of the cheese shown was as good as he ever saw. As a stranger to the district, coming here quite unprepared to see such fine cheese, he thought there was the nucleus of this becoming the finest cheese producing district in the United Kingdom, because it was well known that the making of cheese in a number of dairies in Somersetshire was decreasing every year. *There was some Canadian cheese as finely flavored as any shown.*" As we have already said the other judges concurred in this opinion. It must be extremely gratifying to cheese manufacturers in this country to learn that in the production of an article of such extensive domestic use, they can not only compete with their neighbors across the line, but also with the most famous makers of Britain, whose reputation was world-wide before Canadian makers had turned their attention to this branch of agricultural industry. — *Berlin Telegraph*.

U. S. Poultry Shows.

Connecticut, Hartford...	Dec. 16, 18
Eastern Ohio, Youngstown .....	Dec. 17, 23
Maine, Portland.....	Jan. 13, 16
Massachusetts, Boston, Music Hall.....	Feb. 4, 11
Michigan, Detroit .....	Dec. 17, 23
Middlesex Co., N. J. ....	Feb. 11, 13
Monmouth Co., N. J., Freehold.....	Jan. 7, 10
New England, Worcester.....	Jan. 20, 22
New Hampshire, Manchester.....	Feb. 11, 13
Northern Ohio, Cleveland.....	Jan. 23, 29
Pennsylvania, Philadelphia.....	Dec. 5, 13
Western New York, Buffalo.....	Jan. 15, 20
Western Pennsylvania, Pittsburgh.....	Jan. 14, 18
Winona Co., Minn., Winona.....	Dec. 26, 28

THE total number of admissions to the Vienna Exhibition, from the opening to the closing day, was 7,250,000.

It is reported, on good authority, that \$20,000 was recently offered for Megibben's 2d Duke of Oneida, the \$12,000 illustrated ball in the October number of the *Live Stock Journal*.

There has been an outbreak of pleuro-pneumonia on a farm at Sheffield-lane, near Sheffield. The veterinary inspector has been called, and effective measures have been taken to prevent the spread of the infection. This is the first case which has occurred for a long time in the South-West Riding.

It has been decided to invite the Royal Agricultural Society to Taunton next year. A good site is said to have been obtained. The Bristol and Exeter Railway Company will give £300, and the Lord Lieutenant will convene a county meeting on the subject.

THE high prices paid for certain breeds of sheep, a few years ago, when "Attwood merinos" from "over the mountain," in Vermont, brought anywhere from \$100 to \$20,000, are recalled by some sales of breeding sheep that recently took place in Edinburgh, and Kelso, Scotland. Black-faced and Cheviot sheep sold for about \$250 each, and Lord Patworth disposed of some fancy Leicesters, at prices ranging from \$200 to \$500. His best ram brought \$1000.

The Royal Society for the Prevention of Cruelty to Animals offer premiums, amounting to £400, for improved cattle trucks. The *Graphic* says that a law recently enacted in the United States provides that when cattle, sheep, and other animals are conveyed in vessels or cars they shall not be kept in confinement for more than 28 hours, at the end of which they shall be released for five hours for rest, food, and water. The infraction of the law is punishable by fine.

## Breeder and Grazier.

### Fashion and Utility in Short-horn Breeding

Hap-hazard breeding of stock is a common and a crying evil. The greatest care and skill are needed in order to progress and improvement. Especially is this true in the breeding of Short-horns. It is a mistake to suppose that buying two or three odds and ends, now and then, will suffice to lay the foundation of a good herd. Next to hap-hazard breeding, mere fashion and fancy are to be dreaded. At the present time, perhaps, a check is needed in this latter direction. In this view the following article from *Bull's Head* is opportune. It embodies a large amount of practical wisdom, and cannot fail to supply food for thought to young and inexperienced stock men.

Short-horn breeding, delightful as a pursuit of fancy, has an aspect graver than that of a mere fashionable amusement; and its importance as a subject of national interest is gradually gaining recognition. The pasture of the rich, it may be made, in the hands of the means of either increasing or diminishing, to an extent which fanciers perhaps little calculate, the home-grown food supply of the country. Even, on the one hand, the present and next three or four generations of short-horns, judiciously bred with a view to the plentiful production of milk and beef at small cost, and on the other hand, the same generations of short-horns bred without regard to flesh-growing or milking properties, constitution or fertility, and what would be the difference to the next coming human generation? The inevitable surmise is suggestive of weighty responsibility on the part of short-horn breeders. It is not, however, a burden which the wealthy fanciers bear alone. The more plainly practical man is as much liable to error from cramped adherence to custom, as the amateur from bondage to fashion. To each there is a choice of two courses, the right and the wrong, the one leading to improvement, the other deterioration. Let breeders first determine what they want to breed, or rather (if they are actuated by worthy motives) what the country wants, and then consider how they may best go to work. The desideratum has been already hinted—food grown at the cheapest possible rate. The animals to promote this end must be, first, constitutionally sound; secondly, prolific; thirdly, apt to produce the kind or kinds of food required. All the three conditions relate to properties which are hereditary and capable of cultivation, and their existence in every animal is more desirable. An ancestor lacking any one of them blots the pedigree no less than a mongrel alliance; for chary breeding, tainted health, and poverty of flesh are evils as sure to crop out again as the black horns and blue nose of the alien sire. To maintain the foregoing conditions of success we must select the animals possessing them in the highest degree, and unsparingly weed out all "misuses." The different systems of short-horn breeding, and of the extension of the short-horn race and influence, may be classed under two general heads (admitting of subdivision), thus: No. I. *By the multiplication of members of the tribes and families already established as thorough-bred*; No. II. *By the consecutive use of thorough-bred sires upon ordinary stock*, the latter a process to which we are indebted for new times and families, sometimes capable of taking distinguished rank by their merit. But the one, the blood, the safer, provided it comes through lines of unbroken excellence. The system No. I may be subdivided into three modes:—

1. Breeding from the so-called "pure" tribes, in-and-in as the rule.
2. Breeding from miscellaneous and heterogenous sorts, indiscriminately or indiscriminately mixed.
3. Breeding from carefully-bred distinct strains, with long occasion, and, as a rule of practice, introducing fresh blood when necessary.

Under subsection 1, we include breeding for paper pedigrees. In a tribe originally of robust and healthy constitution, the evils of this system are of course less early and less decidedly apparent than in the case of stock derived from delicate or unsound parents; but we maintain that this method, nevertheless, is in all cases eventually destructive of the tribes subjected to it, by exhaustion of constitutional vigor and reproductive power. If, therefore, you want to keep a sort scarce, to enhance its fancy value, in-bred exclusively, by all means; but that is not the way to multiply beef-and-butter-making animals.

Subsection 2.—This system surely requires a master judgment to work it successfully. Suitableness of personal character, and similarity to family type,

may render near-blood relationship unnecessary, if the breeder has time to examine carefully the ancestry of his stock, and sagacity to perceive fitnesses. Commonly, this sort of breeding ends in much disappointment. Some antagonistic elements meet in a hastily assorted alliance, and degeneracy follows. Thus it is that people who buy good things up and down the country, a bull here and a cow there, without sufficient regard to sort and idiosyncrasy, often wonder why the offspring are so inferior to the parents, and their home-bred herd to their purchased animals.

In subsection 3, we have a summary of the plan which seems to many men of able-judgment, the true policy of our *bull breeders*. The concentration of power by inbreeding is allowed to be greatly favorable to hereditary constancy of type, and to the impressiveness of the animal so bred; and the occasional introduction of fresh material recruits the fading vigor of an in-bred tribe, while, if of the right sort, and infused in small fractional quantities, it neither destroys the type nor impairs the tendency of the type to reproduce itself.

The No. II. system of extension of the short-horn breed is divisible into two processes, generally, each having room for some variety of practice. Upon common stock, good, bad or indifferent, of short-horn, or of some other breed, highly-bred short-horn sires may be used through consecutive generations, according to one or other of these principles:—first, to breed up to one distinct tribe, by the choice of bulls always of that tribe; secondly, to use thorough-bred bulls selected without regard to their predecessors' blood, and sometimes, unhappily, irrespective of type or fitness. By either of these processes a great improvement may be effected, but the latter is hap-hazard, while the former is usually the more rapid as well as the safer course. It is in this system of improvement that the concentration of power by inbreeding tells most favorably. Take a fair specimen of the common short-horn dairy cow, and use to her and her descendants, in uninterrupted succession, 4 or 5 bulls of one potent tribe, and the assimilation of the new family to the old tribe in character is wonderfully close. Thus we have reason to thank those breeders who maintain "pure" sorts; but each should aim to perpetuate a good type, in healthy, vigorous and prolific representatives, rather than to keep strictly "pure," by the sacrifice of stamur and real worth, the descendants of a race once excellent, and strong, and beautifully reproductive.

### Curing and Preserving Meat.

Mr. R. Guild read a paper before the Princeton, N. J., Farmers' Club, of which the following is an abstract. He begins by explaining, and enforcing the superiority of well-matured meat over that of younger animals, and the necessity of cooling off the animal heat promptly and completely, before any other steps are taken. He then explains the use of salt in the preservation of the meat, drawing an analogy between its action and that of heat in the process of cooking, and showing that as little salt should be used as is consistent with the preservation of the meat, and that in the curing of the dried meats lime should be altogether excluded. He then continues as follows:—

What are known in commerce as "sugar cured hams," are packed in bulk with ground salt at such times, or from time to time, as convenience may dictate; the time they remain in bulk is also governed by convenience. They are at length packed in hog-heads, filled with what is called sweet pickle—composed of salt, saltpetre, and molasses. Many of them are shipped from the West in this condition, smoked here, and sold for Jersey hams. The consequence is, there is little uniformity in their quality. Some of them are very good, others over-salted, hard, and tasteless.

The celebrated Burlington hams, of the olden time (Newbold, I think, was the name), were cured in this wise:—

To twelve hams, 8 lbs. sugar, 1½ lbs. saltpetre, 5 lbs. fine salt; rub the hams with this mixture, and let them be one week in a cask, with the skins downward; then make a pickle of the strongest coarse salt, of sufficient strength to bear an egg; add two or three quarts of hickory lye, refined by boiling; when cold, cover them.

The receipt of Abraham Hunt, of Trenton, was—For three dozen hams, 3 lbs. saltpetre, ½ bush. fine salt, and 1½ galls. molasses; mix them well together, and rub the hams well; let them lie twelve, or fourteen days; then make a pickle that will bear an egg, and cover the hams with it. After lying three or four weeks in pickle, rub them with bran, and hang them up to smoke.

The receipt I have adopted for my own use, is as follows:—For 12 hams, 1 lb. saltpetre, 12 lbs. fine

**LARGE PRIVATE SALE OF SHORT-HORNS**—Geo. H. Shawhan, Esq., of Shawhan, Bourbon county, Ky., sold to J. M. and R. M. Kirk, of Ellsworth, Ohio, 16 head of well-bred Short-horn cows, heifers, and calves, this includes the splendid young bull, Mazurka Bell's Duke, rich roan, calved July 4, 1872, by Chaplet's Duke, 6530; 1st dam Mazurka Bell, by St. Valentine running to imported Mazurka, by Harbinger (10297). Messrs. Kirk also purchased of T. B. Moore, Esq., 4 thorough-bred, Short-horn cows—total, 20 head. Price paid for the bull, \$1000, and \$5,200 for the 20 head. The Messrs. Kirk are energetic, live business men, and from the view with which they entered the business, we doubt not they will be highly successful and add much to the importance of the stock interest in Ohio. Young men who take hold of matters in a business like manner, as the Kirks do, deserve success, and success will surely crown their efforts.—*Ho Journal*.

**A GENTLEMAN CARRIAGE**—The Liverpool papers announce the death of Mr. Sackville Gwynne, a remarkable "character," who has for some years been well known in the town. Mr. Gwynne was the son of Col. Gwynne, and was connected with an old family who hold estates in Carmarthenshire. Some time ago, however, he had some differences with his family, and in order to avoid worry and harass, voluntarily exiled himself. For a time he drove the Brighton Age, which he horsed himself in grand style with greys. Later in life, he became a cab driver in Liverpool. In this occupation he was much liked by his brother whips, and was respectful, but distant to strangers who employed him in his professional capacity, although cheerful and pleasant to his friends who saw him at home. He died at the age of seventy-three, and almost up to the day of his death he mounted the box with the greatest regularity, undeterred by a painful internal complaint, nor was his mental vigour behind his bodily activity.

**STOCK**—South Ontario can boast some of the most successful stock-breeders in the Province, and some of the stock exhibited at the Fall Shows in the northern townships proved that only capital and experience are required to enable the North to rival the South Riding in this respect. On Saturday we visited the farm of Mr. Wm. Boulton, President of the Mara Branch Agricultural Society, who is doing considerable in stock-raising, and has some of superior breeds. The stables and yards are fitted up and arranged so as to secure convenience in feeding, and warmth and health to the stock. Mr. Boulton makes a specialty of sheep, and has some particularly fine pure bred Cotswold and Leicester. He is selling a good number of lambs of these breeds this fall. We hope Mr. Boulton may find his enterprise remunerative, and that many others in this part of the country will enter more largely into stock-raising.—*Orillia Packet*.

**FISH CULTURE IN THE STATES**.—The people of the United States are devoting great attention to fish culture, which promises shortly to become one of the staple industries of the country. The Fish Commissioner of the United States, and the Commissioners of a number of the States have of late been operating with no little energy and success for the multiplication of shad. Over 1,000,000 of young fish have been placed in the waters of Virginia, Western Pennsylvania, Indiana, Ohio, Michigan, Wisconsin, Illinois, Vermont and Maine. Five thousand fish have also been placed in Jordan River, in Utah; and 35,000 in the Sacramento; and in California. Many millions of fish have been hatched out by the Connecticut Commissioners and placed in the Connecticut River. An extensive work has also been carried on in the Merrimac and Hudson Rivers by the Fish Commissioners of New York. At the salmon-hatching establishment maintained by the Government at Puckport, Me., 600 large salmon are now panned up waiting for the time for fertilizing the spawn. In the Sacramento River there is another salmon farm, from which 1,000,000 eggs are expected for shipment east. There is no reason why the same branch of industry should not be far more extensively prosecuted in Canada than at present. Fish is a cheap and nutritious article of diet, and as the supplies obtainable from these coasts decrease, our inland waters may be made to increase their yield wonderfully by the application of the same principles which have proved successful among our neighbors.—*Exchange Paper*.

salt,  $\frac{1}{2}$  gallon molasses. These ingredients, when well mixed, will have about the consistency and appearance of damp, brown sugar. Rub them thoroughly with this mixture, and lay them singly on a dry platform. At the end of one week, rub them again; at the end of the second week, again rub them, and hang them up to smoke; let them dry thoroughly, but do not smoke them more than ten days.

It will be perceived that all the foregoing receipts embody the same principles, and differ only in the mode of compounding the ingredients, and their application, and I am frequently amused to see some newly issued agricultural journal publishing a new receipt for curing bacon hams, when, in principle, if not in words, it is precisely the same that was used more than half a century ago.

In regard to smoking meat, it has been practised in this country since time immemorial, but I do not deem it essential to its preservation. Many persons like a slight flavor of smoke, others do not. Meats cured for the English market are never smoked; and I have known persons to kiln-dry their meat, as they would care tobacco. It is necessary, however, to have it thoroughly dried. I would not be understood as entirely disregarding brine. In some cases it is not only invaluable, but indispensable. The sides, or what is known as mess pork, being nearly all fat, possess neither fibrous, nor albumen, and, consequently, cannot be injured either by salt, or water, and can be kept sound and sweet an indefinite length of time, by simply keeping it covered with pure brine, or, as the gentleman from Wheatland suggested, at our last meeting, by keeping it covered with salt, and taking it to the pump now and then, and filling the cask with cold water. I would here, however, drop a caution. All brine requires to be assiduously washed, and kept pure. It extracts the juices of the meat; they being lighter than the water saturated with salt, rise to the top, become exposed to the air, and soon decompose, thereby contaminating the whole contents of the cask. The following receipt for making brine, I think, is the best that has fallen within my observation:—

Six lbs salt, 1 pint molasses, 6 ozs. saltpetro, dissolve them by boiling in 4 gallons of water. In the pickle, when perfectly cold, keep any sort of fresh meat sound, and closely stopp'd. This pickle may be kept pure, and its strength undiminished for almost any length of time, by occasionally re-boiling it, and skimming off the impurities; but, as old brine is an excellent fertilizer, and salt is not expensive, I would recommend that the old brine be thrown on the manure bed, or compost heap, and freshly-made brine be substituted.

Opinions in relation to "the best mode of preserving meats, after they are cured," are as diversified as they are in regard to the mode of curing. The hams of commerce, I believe, invariably covered with canvas, and well washed. Many persons advocate packing them in chaff, bran, ashes, &c. Others, after smoking, immerse them in brine; others, again, pack them in air-tight barrels. The manner of keeping is not so essential as the time at which they are put up. And hence the necessity of not consuming more time than is necessary in curing. If they are not secured before the fly deposits its eggs upon them, no means whatever will save them, except, indeed, keeping them in a temperature so low that the egg cannot hatch, or immersing them in brine. For any considerable quantity, I prefer the tight barrel system. But for family use, I have found a rough, swinging shelf, the sides and ends of which are covered with wire cloth (in which the pieces are hung) very convenient, and secure against both flies, and vermin of every description.

Now, Mr. President, and gentlemen, if the foregoing premises be correct, I am led to the following conclusions:—

1. To have cured meats in perfection, no animal should be slaughtered until it has, in some degree, at least, attained its natural growth.
2. All meats should be promptly, and thoroughly cooled before being salted. If in cold weather, by hanging in a cold place, at least 48 hours, and as much longer as will be consistent with its keeping sound, but under no circumstances let it freeze.
3. No more salt should be used, and no more time should be consumed in curing, than is necessary to its safe keeping, due regard being had to the size of the pieces, the temperature of the weather, &c., and as little water should be used as is consistent with cleanliness.
4. They should be thoroughly dried before stowing away, but smoke is not essential to their preservation.
5. To preserve them, after being cured, they should be stowed away in a cool, and well-ventilated apartment, before the fly can possibly reach them. In this climate, I should say not later than the middle of February.—*Rural New Yorker.*

### Wintering Lambs.

The following seasonable article was written by an experienced sheep breeder and will be found profitable for its suggestions just now. It appeared about a year ago in the *Ohio Farmer*:—It is a custom with quite a large majority of sheep farmers to delay graining their lambs until the approach of spring, when they are sometimes far gone in poverty. Is this wise? Would it have been thus if they had been grain-fed at the beginning and through the early part of the winter? Is it not better to begin as soon as this, in order to furnish them with the necessary stamina to withstand the severity of northern winters, which is always greatest in the months of January and February? Put them early in a condition to pass through those terrible months, and subsequently all will be well.

The grass at the beginning of November loses much of its nutrition from repeated freezing, therefore at this period the lambs should be assembled and classed relative to size and condition, divided into flocks, about one hundred each, and feeding them with grain should forthwith commence. As it is sometimes impracticable to call them into the sheep folds without considerable trouble, the feeding troughs should be removed to the field in which they are confined; then the flock master may begin feeding them about four quarts of oats daily, which he should be careful to distribute the entire length of the trough. They will be very shy for a day or two, but the example of approaching them by the tame sheep which were placed among them at weaning time will be the means of soon overcoming it. After the lapse of a week, the quantity of grain may be gradually increased to half a bushel, which should be the minimum quantity for the residue of the season. When the major portion have partaken of the oats, the troughs may be removed back to the sheep yards, and the time fixed for feeding should be about sundown, after which they can retire to shelter should the weather require it. At this time, a little hay should also be given early in the morning, which practice may be pursued until circumstances demand a change wholly to fodder.

About the middle of December, or before, let the feed be somewhat changed, by mixing with the oats a portion of pea meal or wheat shorts; at all events let it be meal of some kind which they may fancy, for in order to induce them to eat potatoes it will be necessary to cut them into delicate pieces and sprinkle the meal well over them. If sheep are wholly unaccustomed to potatoes, their aversion to them will not be overcome without the adoption of this course. Beets and ruta bagas may be substituted for the potatoes; but the reader has been informed that they are better adapted to the purpose of the sheep fattener. If it is our wish to grow wool and not fat mutton, it will be wisest in us to use those means which will afford the largest returns. Half a bushel of potatoes given at intervals of twice a week will be the right quantity, which it will be well to continue to sprinkle with meal, as well as with a small quantity of salt. On other days, the pea meal and oats may be fed.

The hay given them should be of fine stalk and of the choicest quality; but in its place may be substituted once or twice a week for a single foddering, oat or barley straw. If the lambs are thus provided through the winter and have the benefits of warm shelters, their size at shearing time will equal the majority of two-year-olds whose treatment has been only ordinary.

### The Stock on the Farm.

I bought half a score of Irish steers while in town, and had not seen them. Beautiful! They will pay well. Last year I had a dozen, and, though our neighbors all round, had foot-and-mouth disease, we wholly escaped. A much used road skirts the pasture in which the beasts are generally kept, and is the channel for the passage of many animals to and from the neighboring market-town. Now, you know that cattle, seeing others passing by, have a trick of kissing over the hedge. So I said to my man, "If you keep those beasts untroubled by the plague, I will give you five per cent. of all that I make by them." Every day that other cattle were at all likely to pass along our skirting-road, he drove mine into the home paddock. Thus we were not touched; and I made between sixty and seventy per cent. in five months, on my Irish steers. Mine is a capital place for them, plenty of grass, water, and shade. I bought them in June, and sold them at the end of October. Along with the Irishmen, were Huz, and Buz, two calves I saw growing into weasels, along with Daisy, and Snowdrop. Huz and Buz, born this year, are much smaller

than the others, though they feed along with them, and generally graze side by side. Snowdrop is a lovely white short-horn heifer, from whom I propose to breed. Daisy, I bought last autumn; a sweet, little Alderney calf, like a tawn, pure bred, with large, swimming eyes, and a head which looks as if it were cut in cameo. I went to see her; she smelt my hand with her sweet, cold nose, and showed me that she was the princess of the whole party of beasts. She leads them about, and looks royal. Then I went to inspect Old Horny, Young Horny, and Buttercup. Old Horny is a capital East Anglian cow, old, but very productive of milk. Huz is her son. Young Horny is the mother of Buz, and the cunningest cow alive. She is the ringleader in all breakings of pasture, and so clever with her horns that I believe she might be taught to knit. We have separated her from the others, lest she should poison their minds. She is red, and a beauty. Then I went to see Peggy's grave. Poor, dear Peggy was a pony. She died thirty-four years old, two Sundays ago, at about half-past eleven. She simply laid down and died. The day before, she was quite well. Many a time have I driven her over to our neighboring town, between four and five miles off, in twenty minutes, without touchalnger with the whip. She won trotting matches in her youth; and my father, who had a wonderful eye for horses, bought her, promiscuously, out of a common cart in London, having seen how she was stepping out. Now she is dead; and I pray the Royal Commission on horses to tell me where I can find such another.—*Chambers' Journal.*

**SUBDUING A VICIOUS HORSE**—This is done in Mexico and South America, by placing a bed-cord in the mouth of the horse like a bit, tying it tightly on the animal's head, and passing his left ear under the string.

**RAPID FATTENING.**—Jonathan Talcott states that a Suffolk pig was fed on boiled sugar beets three times a day from Aug. 16 to Oct. 1, during which time his weight increased from 360 to 450 pounds, the gain during September being 60 pounds.

A story relates how a sheep-stealer who had long escaped conviction was at last caught in the very act, and civilly asked what excuse he had to offer. His answer was apt. He had to admit that he had killed the sheep, but he added, with some indignation, "And if another attacks me in that way, see if I don't kill it too!"

**FIRST DEVONS IN AMERICA.**—According to a correspondent of the *American Farmer*, the first Devon cattle imported to America were a bull and six heifers presented to Robert Patterson, of Baltimore, by Mr. Coke, afterward Earl of Leicester, in 1816. In 1835 another Devon bull was imported, and thenceforth frequently. This was the origin of the famous Patterson herd, still in existence.

With reference to horses, an American paper of a religious turn suggested that "it might be well to sit at the feet of a horse and learn humility." Another paper, better informed in agricultural matters, observed, "Oh! that is all very well, but just let the writer set down at the hind feet of a mule, and if he is not humiliated, let him pull his tale and tickle the inside of his legs with a pitch-fork."

**CASHMERE GOATS.**—The hair or fleece from the Cashmere goat, bred on the Pacific slope, has got to be a considerable feature among the commercial products of the country. Shipments of this article are now regularly made from California to our eastern ports. In a recent shipment to Messrs. Davis & Faulk, Philadelphia, several hundred pounds of this fleece, after being sorted out, was valued as follows: For fine, \$2 20; low fine, \$1 10; fine kompt, 80 cents; low kompt, 70 cents; short, from three-quarter grade, 40 cents; breech locks, 40 cents. The fleeces sold were from three-quarters grade up to full blood.—*New York Weekly Times.*

**DRY EARTH AS BEDDING.**—A correspondent of the *Ohio Farmer* says that it is well established that dry earth is of the greatest benefit to the comfort of stock when used as bedding. Any farmer can fill a large bin during warm weather with scrapings, powdered clay, or common soil. This may be strown on the floor of a stall to the depth of three inches, and litter for their bedding laid on it. Thus the urine will be absorbed, and the nitrogen saved, for dry earth is so powerful an absorbent that a flooring of this sort will not be sufficiently saturated as to require replacing for a long time. Then this saturated earth is worth more than its weight of fresh manure. The plant food thus saved from the stables is fully doubled in quantity and value, and is in much better condition for use.



## Veterinary Department.

### Influenza in Horses.

For several weeks past the disease usually known as influenza, has prevailed to a considerable extent amongst horses in this city, and in several parts of Canada. It is not, however, to be confounded with the catarrhal fever, which appeared in an epizootic form last year, and spread over the whole Continent. The present type of disease is the same that we have had on several occasions, and that generally prevails, to a greater or less extent, during the months of spring and fall. As considerable excitement appears to have been created in some districts, by supposing the country was again likely to suffer from a return of the epizootic (the term now generally applied to last year's disease), we have no hesitation whatever in stating that there are no signs of the reappearance of that malady.

Influenza, as it usually appears, may be justly considered a disease of a specific character, and showing well marked catarrhal and febrile symptoms, and generally tending to involve many different organs of the body, as the liver, the lungs, and the heart. Not unfrequently the great centre of the nervous system is implicated; and in the majority of cases, the more prominent symptoms exhibited, may be regarded as mainly due to great depression of the nervous centres, the cause of the depression being due to the presence of a poison in the blood.

Influenza is generally most prevalent in the spring and fall, and in all probability it is primarily excited by some peculiar atmospheric influences which appear to exercise an injurious effect on the general health of animals; but there are many other influences which assist materially in generating and spreading the disease, such as bad drainage of stables, or badly ventilated stables, in which animals, especially such as are in a low condition, from not having a sufficient supply of nutritive food, are compelled to breathe impure air, because in such animals the general system is weakened, and unable to withstand any further debilitating influence.

No matter how well, or how regularly an animal is fed, if forced to breathe impure air during the greater part of the day, and denied a sufficient amount of exercise, the general health is lowered, and the animal rendered more susceptible to an attack.

The symptoms of this disease vary considerably in intensity and form, depending, as a matter of course, on the organ or organs most seriously affected. The early and general symptom is dullness. The animal has a very languid appearance, eats poorly, and sweats on the slightest exertion. The bowels are slightly costive, and the urine scanty and high-colored. The coat is staring and dusty-looking, the mouth hot and dry, and occasionally there is a cough present, which is very easily excited by gentle pressure upon the larynx. The pulse is also quick and weak, varying from sixty to eighty beats per minute. The above symptoms are sometimes followed by those of a more decisive character: the horse appears to be suffering from an intense headache, and when made to walk out, he immediately shows great nervous depression, by his reeling, staggering action, and is apparently so weak that a very little force would knock him over, and these prominent and somewhat alarming symptoms may appear in a very short time. In other cases the breathing becomes very much affected, which is perhaps more perceptible at the nostrils than at the flanks; the throat is sore, and the bronchial tubes become affected, which can be easily ascertained by applying the ear to the front of the chest, when the labored bronchial breathing can be easily heard. In this stage the ears and legs are generally cold, and the surface of the body

is somewhat irregular in temperature; the mucous membrane of the eye is of a yellowish red hue, and frequently there is a discharge of matter from the nostrils, which is a favorable sign when it is of a yellowish white color, but when of a brownish red appearance it must be viewed with suspicion, as it denotes very great debility. When the liver is involved, the yellowness of the mucous membrane of the mouth and eyes increases, and the feces are of a light color, and covered with a slimy mucus.

Occasionally the disease assumes a dropsical form, when the legs, sheath and belly will present an oedematous condition, and without the oedematous swellings become of a very alarming nature, this symptom is rather favorable than otherwise; as it appears to be one of nature's means of affording relief, and possibly a preventative of more serious disease in more important and vital organs.

When the lungs become affected, the breathing is greatly increased, the pulse becomes weaker and more oppressed; the coldness of the extremities continue, and there is a peculiar flapping of the nostrils; the appetite is completely gone, and in unfavorable cases the symptoms increase; the poor sufferer remains standing almost until death approaches.

In most cases of influenza, the patient keeps on his feet almost continuously, seldom lying down. In some cases when he becomes very weak he will lay down, when some of the symptoms, such as the severe breathing, is greatly increased; but if the patient is lying in a commodious and comfortable part, he should not be disturbed for some time, although it may be necessary to watch him to prevent him getting his head in an unfavorable position, which would interfere with respiration.

In our next number we will allude to the general treatment of influenza.

### Grease and Scratches.

These are two distinct diseases. Not one horse in a hundred thousand has grease in this country, whereas thousands have simple scratches. Grease should be treated by a veterinary surgeon, as it is too formidable a disease for a man who cannot diagnose a case. The more quackery used, worse the case becomes. By vaccinating a heifer calf with matter from true grease in the horse, we produce the kine pox, which is used in vaccinating the human patient. There is also said to be a well authenticated case produced directly in man while attending this disease. It would require a page of your paper to give a farmer anything like the proper directions for treating it. Slight attacks of scratches are easily cured by washing carefully with warm water and castile soap. Then dry carefully with a soft cloth, and keep the patient on a dry floor for a few days. In severe cases, use poultice of ground oil-cake, or flax seed. When the inflammation subsides, dress as above. Then use carmine ointment until the skin has become sound and flexible. Horses that are troubled with scratches should never have their legs washed with cold water. Dry mud is better than cold water. Time should be taken, as any caustic that will dry them up in a day, injures the skin, and makes it more ready to break much worse than at first. White lead makes the hairs adhere and tear out by the roots. Hence the zinc ointments are better.—*Country Gentleman.*

### Arsenic for Swine.

A correspondent of the *Southern Farmer* writes: "I heard a reliable gentleman say that he had several pigs that lay around the yard, and under the houses, until they were nearly dead with mange. They were annoying, and he wanted to get rid of them; but to use his own words, he 'hated to knock them on the head with lightwood knots,' so he procured some arsenic, and gave them about two grains apiece. About three hours after that he found them stretched out in the sunshine, and he thought sure they were 'goners,' but to his great surprise, the pigs were up at 'grub time,' with appetites as 'keen as a brier.' He gave them another dose, but instead

of its causing their exit, they commenced thriving from that day. In a short time they had shed all the old hair and scales, a new coat came out, and he said he had never had a finer or healthier lot of hogs in his life from that time until they were killed for bacon. I know from my own experience that a certain quantity of strychnine will cure mange in hogs, when nothing else will. A hog that has taken strychnine or arsenic should not be killed in two or three months, as it will take that time for the poison to get out of the blood."

### Pigeon-Toed—How Dr. Dunbar Makes a Horse Too Out—A Wonderful Operation.

Yesterday afternoon, (Nov. 19), Dr. Alexander Dunbar, of Woodstock, Canada, whose reputation is very extended, performed an interesting operation on a horse in Adams' blacksmith establishment, on Second Street. The horse was pigeon-toed, so much so in fact, that he could not travel with ease or grace. When standing square on his forward feet, with his knees four inches apart, his hoofs would nearly touch each other in front. The operation appeared very simple. The hoof was pared to the quick, and a shoe fastened on. Then a spreading jack was inserted in the hoof, and widened gradually by means of a screw, until the leg bone was twisted to its proper place. After one operation, which the horse did not seem to mind, his hoofs, when standing in the same position as before, were three and one-quarter inches apart. The difference was perceptible without the use of a rule. Horsemen generally will not believe this statement, or they will assert that the horse is ruined for life. Such is not the case. The horse is worth to-day \$100 more than yesterday. Messrs. George Clason, George Stevens, and M. B. Medbery, were present during the operation, and were convinced that it was a successful one.—*Milwaukee News.*

The best liniment for cuts, galls, spavin, poll evil, fistula, or any other of the external diseases that animals are liable to, is made by dissolving one ounce of pulverized corrosive sublimate, and one ounce of gum camphor, in one pint of spirits of turpentine, put in a strong bottle. Apply with a swab.

To PREVENT horses from rubbing the hair off their mane and tail, take half a teacupful of sharp cider vinegar, pour on the spot where the rubbing is done, and card it while pouring on, and it will be found that this simple thing will stop rubbing down fences, or spoiling the looks of the tail in the stable.

HORSE SHOENING.—Never touch the bars, frog, sole, or outer surface with a knife, or rasp. Shoe with light, thin shoes, that allow the sole, bars, and frog to be brought in contact with the ground, and thus bear their due proportion of the horse's weight. Use small nails, and not over five of them. Never allow the points to be driven high up the wall of the hoof. For ordinary service in the country, during the summer months, use only tips, which protect the toe, but leave the entire ground surface of the foot unprotected.—MURRAY.

PROMOTING GROWTH OF MANE.—Middy Morgan gives this recipe for accelerating the growth of hair on the manes and tails of horses. She says: "Take corrosive sublimate (*hyd. bichloride*), oxymercurate of mercury, each four grains in one ounce of distilled water. Wash the parts where the hair is thin with warm water and soap, then rub with a linen cloth, and immediately after rub in some of the above liniment. If the hair has been rubbed off by the animal's own endeavors to allay cutaneous irritation, then dress with the following ointment: One ounce of fine flour sulphur, one ounce of pulverized saltpeter, made into a soft ointment, with fresh butter or fresh-rendered hog's lard, rub in at night, and wash out in the morning with warm water and soap; repeat three or four times. If the hair is scant from natural debility of the capillary organs, then simply use cold water applied with a soft sponge; avoid all combing or brushing, and clean the mane and tail as Arabs do, with a coarse flannel rubber."

## Poultry Yard.

### Poultry Progress in Canada.

It is very gratifying to observe the steady, onward progress of poultry-breeding in this country, as each successive year takes its place in the cycle of time. The exhibition season just ended, has, in this respect, been greatly in advance of former years, as well in numbers as in superiority of specimens shown. True, numbers are not always a sure indication of good birds or good breeding, although it is of the general interest manifested, but the careful observer at our principal shows cannot but see marked progress in the general appearance of all the specimens shown, indicative of a better acquaintance with the principles of poultry breeding, and a more universal desire of supplanting the old race of barn-door fowls with new and improved breeds. Not many years since only a few good pens at our principal exhibition would be found, and those filled with imported stock, for which, usually, very high prices were paid; now, however, a great change is taking place in this respect, although some of the best pens still contain imported fowls, yet a large number of others are filled with excellent specimens bred at home. Nor is this general progress observable alone at exhibitions; it is also to be seen at our town and city markets, in the size and quality of the table fowls offered for sale. Asiatic blood is clearly traceable in very many of them. The Brahma and Cochin parentage is evidently considered of advantage, while the plump breast of the Dorking and Houdan cannot be mistaken. In the goose and duck tribes there is still great room for improvement, and it would afford us much pleasure to see in the one the Bremen and African, and in the other the Aylesbury and Rouen breeds more generally introduced. Bronzed turkeys are, however, becoming more general, and it is to be hoped will soon take the place of the old common varieties of black and grey, white and yellow.

At the Provincial Exhibition this year, it was universally admitted that the show of poultry far exceeded both in numbers, and excellence of specimens, anything of the kind at former exhibitions; and, although, not free from errors and mistakes, the judging was better than on former occasions. Several causes may have contributed to this end. Perhaps a better knowledge of poultry possessed by the judges of this year than of former ones, although we hardly think so, seeing that one of them (there were only two) had served in the same capacity in former years; perhaps to their fewness in number. Heretofore it was deemed necessary to have a larger number; sometimes five, chosen from different sections of the Province, each of whom, it was well understood, had his sectional sympathies, owing to which, not unfrequently, compromises were made, and prizes awarded to birds of a very inferior sort, causing dissatisfaction and disgust in the minds of exhibitors of good fowls, and to the detriment of the exhibition generally. Our own opinion has ever been, that it is utterly impossible for any two judges, no matter how capable of performing the task assigned them, to judge correctly and satisfactorily within the limited time allowed them, the different breeds of fowls on exhibition. How any two men could examine within a few hours, over three hundred pens of fowls, weighing the merits and demerits of each pen, we fail to see, and so long as this system of judging is pursued, so long will errors and mistakes be made, and exhibitors continue dissatisfied. Indeed it is very difficult to find in one man such a thorough knowledge of poultry as would enable him to judge intelligently all breeds and classes of fowls; he may, for instance, be an excellent judge of game birds, and know how to handle them with advantage, on particular occasions, to point out the difference between

a bird for exhibition, and one adapted to the pit, and yet have a very confused idea of the exhibition points of a Brahma, or a Cochin; he might be able to speak to the merits of an English Dorking, and be comparatively ignorant of the general characteristics of the French Houdan, and so of all the other breeds. The true plan to adopt, and to pursue, is to divide the classes into three or four sections, allotting one judge only to each section, then by rendering him personally responsible for the awards made—the judge to be one well known as one thoroughly conversant with all the characteristics required in exhibition birds in that particular section. The adoption of this plan would bring errors in judging, like chickens, "home to roost," and there would be fewer of them. No man, no matter how general his knowledge, or extensive his experience of poultry may be, is capable of judging satisfactorily any class of birds of which he has not himself been a breeder, and not a breeder merely in the general meaning of the word, but a breeder intelligently. There are innumerable little points about a fowl impossible to describe as one understands them, which can only be learnt by close study and inspection from chickenhood upwards, and it is just the knowledge of these little points which makes the perfect judge. The eye of the good breeder and true fancier will take in more by one look at a pen of fowls, than a writer can well describe on a page of foolscap. There is a sort of acquired instinctive knowledge—if we are allowed the expression—possessed by the breeder which cannot be well imparted by mere words, and which must also be possessed by the judge to enable him to perform his duties satisfactorily; it is to the want of this that we must attribute the many errors in judging at our poultry shows. To select men as judges ignorant of these points, not known, and recognized as practical and intelligent breeders, and who have proved themselves as such, and instruct them to pass judgment on all breeds of fowls from the Sebright, and white feather-legged Bantam, to the lordly Cochin, on land fowls and water fowls alike, and on the innumerable varieties of pigeons, from the ring-dove to the tumbler, and pouter, is to offer a direct insult to the intelligent breeder and fancier.

The entries in the poultry class of the Provincial Exhibition of this year, were in excess of last, but on a careful analysis, the increase appears to be principally confined to the chicken class, and distributed among White and Colored Dorkings, Polands, Black-Red Game, Buff Cochins, Light and Dark Brahmas, and Houdans; a slight falling off appears in the same class in Duck-Wing and Pile Game chickens, the different varieties of Hamburg chickens, and in Aylesbury and Rouen ducklings. There is but little change to notice in the number of entries in the fowl class, between this year and last. Game, as usual, taking the lead, followed closely by Dark and Light Brahmas, Colored Dorkings, Buff Cochins, Black Spanish, and the several varieties of Polands, and Hamburgs respectively. The any variety class showing twenty-one entries of the three varieties of French breeds, to which separate prizes are offered, only one, the Houdan, seems to attract many exhibitors—the other two, Creve Cœur and La Fleche seem to be monopolized chiefly by one exhibitor, and two entries in each section. In instances of this kind the course pursued at the leading English exhibitions is to do away with any class which is not self-supporting, or, in other words, fails to attract exhibitors, and appropriate the prizes to some other breeds not formerly awarded a separate class, but included with the any variety. A similar course might be adopted by the Directors in this case—allowing one section only for French breeds, and offering two new sections to two new varieties of fowl hitherto unknown to the prize list. White and Brown Leghorns, a very superior breed of fowls, and well deserving the attention of all breeders and poultry keepers. A separate section is also given to White Spanish, a variety

scarcely ever represented. Exhibitors taking advantage of the ignorance of judges, and entering White Leghorns, thereby securing prizes for a class of birds not acknowledged, no matter how deserving. This section should be set aside, and a new one given to Black Hamburgs, a variety now acknowledged at the leading shows in England. Of the other breeds of fowls to which prizes were offered, little need be said. In numbers, the entries stand nearly the same as the previous year, it is not, however, to number of entries we are so much to look for poultry progress as to the superiority of the specimens shown each year. Any one at all acquainted with the perambulating system governing our exhibition, knows full well how much the number of entries is governed by the locality in which the exhibition is to be held. We have but few breeders who follow it from place to place, year after year. It is pleasing, therefore, to note, and, moreover, speaks well for the general interest manifested in poultry-breeding. The numbers of new names which year after year appear in the catalogue of entries, and, withal, how they keep progress with the improvement in exhibition stock, and, viewing the exhibition of poultry as a whole, but one opinion prevailed, that in the specimens shown this year, there appeared a marked degree of superiority over former exhibitions.

Following closely in point of excellence were the three other great local exhibitions, at which poultry in each held a prominent place, Hamilton, Guelph, and Ottawa, in Ontario; as well as the Quebec Provincial Exhibition, held at Montreal. In addition to the above, our numerous County and Township shows, all more or less contribute to the general interest manifested in poultry breeding—a great number of which have a separate class for poultry—and judging from the reports received from a number of them, the prizes were not awarded without keen competition. These act as feeders to our great general exhibition, and are well deserving of the Government support they are receiving. In a country so well provided as Ontario is with a regular network of exhibitions, there is but little need of special societies in the interest of any particular class of animals, be they bipeds or quadrupeds. It is not much wonder then that such undertakings droop and die, especially so, if carried on more in the interest of the promoters than for the general good.

### II—"Blood" in Breeding—What it is and what it Does.

Continuing his remarks on this subject in the *Poultry Bulletin*, Mr. Wright says:—"In my first paper on this subject I showed how any desired point to which there was originally a slight tendency might be developed and fixed in any stock, gaining a greater fixity every succeeding generation, provided specimens were steadily selected which showed the desired point in the greatest perfection. We then considered the case of the fancier, who finds that his chickens do not present the much-desired uniformity, and noted that even in his case there were certain points which he found to breed true, and always expected to breed true; and I closed by suggesting the enquiry. Why does the fancier find certain points thus satisfactorily permanent whilst in others an equal uniformity seems out of his power to attain? I closed thus purposely, in order that as many as possible might see the answer for themselves, which is by far the best way of arriving at any particular conclusion, but we may now consider the matter more particularly. Any breed would do as an example; but for obvious reasons I find it easiest and most natural to go for illustration to the fowl I know and understand the best—my old pets, the Dark Brahmas. Our young fancier probably fails in breeding his pullets with any satisfactory uniformity of pencilling, for instance, though he has bought expensive birds—perhaps the very best that are to be had. So very far from uniformity are they, that very likely he at length ceases even to expect it, and makes up his mind that his only plan is to go on

forever as he has done, breeding some hundreds in order to select a few good matched pairs. But if any one were to ask him whether he expects to find among his chickens any with *single combs*, he would at once say, No! With other than yellow legs? No, again, decidedly. Now, why is this? That is the question with which we left off.

The answer is as simple and evident as can possibly be. The yellow leg and the pea comb have been regarded each as an absolute *sine qua non* in the Brahma breed, and hence for many generations birds which did not possess them have never been bred from. It was not formerly so even with the comb, for I can remember myself seeing very fine single combed Brahmas even of the dark variety, years ago. But for many years now the rule has been imperative, and *not one single link* in the chain of succession has been lost, in breeding from pea-combs only. Hence every generation has added to the stability of this point, till it is now so fixed that hardly a single comb could be found amid hundreds of chickens. That point is sure; and any amateur who bred from any given stock, single combed chickens (more than a stray one very rarely; for a breed may occasionally 'sport,' as it is called, almost any thing) would at once infer that he had been imposed upon with impure blood. But if our fancier considers carefully his own proceedings, he will find that as regards his general breeding he has not gone upon a similar invariable system. The first year he breeds, while various faults can be easily enough found amongst his various chickens, he finds probably some one fault peculiarly so; it may be want of leg feather, or streakiness, or light breasts in his pullets—let us suppose it is want of feather. To correct this, he next season buys or selects from his own stock a hooked bird. This time he gets plenty of feather, but if his pencilling was good before, it is very likely worse now. So for next season he selects a bird with beautiful dark but speckled breast and splendid hackles, and he finds his pencilling somewhat improved (though not as much as he hoped) but very likely his cockerels are now very light on the breast, and ten to one the old fault, or want of feather, reappears. He thinks now that what he wants is a fine jet black breasted cock, and he gets one just to suit, when some of his cockerels are splendid in color; but perhaps the father was coarse in the comb and so all the chickens are, and very probably the pencilling of nearly all his pullets is quite dull and cloudy, those which are not, being nearly white breasted. I think this is a pretty fair picture of average breeding. Such a plan necessarily fails in producing uniformity, simply because no point is bred for long and persistently enough to fix it at all. Each time a fault is attempted to be corrected, some influence upon that fault really is exerted, and it followed up the ground might be secured, but very little really is gained for the first year or two, and by dropping the next link in succession all or nearly all is lost again. And the link is thus dropped in many cases where it would not be suspected. For suppose a very small and neat comb to have been bred for, and a good approach to it luckily gained, but some other grave fault developed. To correct this it may be impossible to select a bird from the home stock, and a cock from another yard is procured. His comb, too, may be good, and hence it is thought that the course of breeding for good combs is *not* dropped, though the other point be taken up too. It may indeed be thus, but it may also be that the new bird, though good in comb, is almost the only one such in his yard, and comes of a very coarse combed strain, and so the result is equally what I have attempted to describe. Hence it appears that it is not enough even in breeding steadily for any point desired, to select birds from anywhere which present that point, however perfectly. Unless any bird be an *actual link in the chain*, scarcely anything will be gained by him. And he is not a link in the chain unless he be either one of the strain which is being protected, or if foreign to it, at least the product of a *generally similar course of breeding*, by which the desired points have been to a certain extent fixed in him in a similar way. It is on account of this that all good breeders are so unwilling to cross. No good breeder I know crosses but when obliged, and when thus obliged, always proceeds with the most extreme care, and often gets "served out" even at that; though even then, if he really has acted with judgment, however grievously he be disappointed the first year, all generally comes right in the second or third generation. Though the birds be alike, if the course of breeding be different, the first result is almost always bad. Thus, it is only lately that breeders have had much success in breeding first-rate birds of both sexes from the same strain, and even yet, as is well known, there are many strains which breed first-rate cocks, and only moderate pullets with others more famed for pullets than cockerels. Now supposing one breeder to have

started with a good cock-breeding strain, and by judicious breeding to have so improved it that at last it breeds also good pullets, whilst another strain only originally bred pullets but has by similar skill been made to breed also fine cockerels; if these strains be crossed, and have little blood in common, the produce the first year will in all probability be bad, each strain 'throwing back' to its recent fault, though the strains themselves may appear closely similar. But in such a case as this, the second year should remedy matters. Hence the reason why a man who buys birds every year to breed from, *can never breed well*. He may win at exhibitions, if the birds he buys are good enough; and he may even get a good chick now and then, but breed he *cannot*. This rule is invariable, and I have never known a single exception to it. It is also plain enough, that if two careful breeders work independently their strains can never be alike. Each has formed an ideal of his own, towards which he steadily works; and as it is many chances to one against two such ideals being precisely similar, the 'strains' will vary. They do thus vary. It is so in the most famous tribes, or what we shall call 'strains' of short-horns—the 'Bates' and the 'Booth' strains; the Booth animals having perceptibly broader backs and somewhat stouter limbs, while the Bates bulls have more symmetrical elegance of form. The two represent the two *ideals* of these famous breeders, and so different strains of any fowl—that is, if they be *real strains*, carefully bred for generations—present similar differences to an educated eye. One man's Cochins are noted for their beautiful tails, those of another for their small and delicate heads; those of a third for their fine broad proportions. And it can be easily understood how it is, that artists very frequently make the best fanciers, their trained eyes *seize the ideal* of a race, and do not go wandering off from it, or continually changing it, as others do. They seem to seize what I may call the 'genius' of a breed and hold it fast. They may improve on their ideal as they go on, but if so, their improvement is a gradual and steady development, not a capricious change of type. Many of the great cattle breeders even, were artists. Fawkes was, so was Booth himself; so were Strafford and Page. One of the best light Brahma breeders in England is an artist; and I noted with much interest that his artist eye sprang at once to as good a standard of shape as I have often seen. And it is found that a really thoroughly good breeder, almost always makes a good judge. It follows, too, that it is almost impossible to perfect a strain without considerable interbreeding. The process has its dangers, but these may be counteracted by judgment and care; and after the experience of many years, I say advisedly, that a good strain *cannot* be made without it. Every one knows that to in-breeding of the closest character the tribes of short-horns owed *everything*. The celebrated bull "Favorite" was put to his own dam, to his sister, his daughter, his granddaughter, and even his great-granddaughter! besides countless other matings of collateral relationship. And even when this process might have been supposed to be completed and the desired qualities sufficiently fixed, what is the testimony of Mr. Booth? "The result of the last three crosses upon which I ventured," said he to Mr. Carr, "namely, Water King, Exquisite, and Lord Stanley—has made me distrust the policy of any further step in that direction; nor have the results I have witnessed of the experiments of others in crossing animals of any blood with the most fashionable bulls of other strains, tended in any instance to remove that distrust."

I hoped to have concluded in this number, but the subject has grown upon me, and I must leave to still another paper the practical application in detail of the principles we have been considering.

#### Deteriorated Games.

A writer in the November number of the *Poultry Bulletin* says:—"This is a subject which seems to be agitating our brethren over the water at the present time. That the English game fowls of the past and present are not of the same quality is evident to any one who can compare the illustrations of Weir in Tegetmeier's Book with those of Ludlow in Wright's Book of Poultry."

Who can suppose from a glance at the pictures that they represented birds of the same variety? The birds of Weir were models or curved lines (said to be the lines of beauty), those of Ludlow are made up of angles, which betray too evidently the stain impressed upon the English games by the angular Malay. Compare the purest of the Malay cocks of Tegetmeier with that of the brown-breasted red of Wright, and we do not think many will doubt the

near relationship of the two; then compare the same with the Malays of Wright, and the comparison will be as confirmatory of the Malay taint in the English games as proofs of "Holy Writ." The thin hackle, whip-tail and long legs of the exhibition game are undoubtedly owing to a cross with the Malay birds. Again compare the pile game of Wright with his Malays and he must be blind who cannot see how much closer is the relationship between the two than between the pite and the noble looking birds of Weir. The black breasted reds and the Duckings of the two illustrators are far enough apart to be classed as different varieties, instead of strains of the same variety.

Allowing that the blood of the Malay mingles with that of the game, is it disadvantageous to the game? Undoubtedly it is. It gives them a handsome appearance in the exhibition coops, but it adulterates the *gameness*. They are not to be depended upon in the pit. Those who admire games do so because of the renowned courage of the variety, and no one keeping them would be pleased to hear that his birds had shown the white feather; yet that is what those with the Malay cross will do. A little experience may be of service here. Before the late war we bred from a Malay cock and three Sefton hens, of a well tested strain, a lot of chicks, from which we selected a stag to breed with the same hens, thereby producing young with but a quarter Malay blood. From the last lot we selected two very handsome stags, and ran them with pure-bred Sefton and Tartar hens. Their young were almost identical in appearance with the exhibition fowls delineated for the Book of Poultry. Six of the best were tested in a main of eleven. One killed his opponent in the first fly, four ran away, and the sixth was killed before he had time to run. Our family complained of the monotony of chicken dinners for some time afterward. Take them all in all they were the handsomest birds we ever bred, mostly black breasted reds, standing high, with thin hackles, whip-tails, and an average weight of six and a half pounds. Naturally they were savagely fighters, but proved craven before the steel. In other words, the Malay cross (too common in English games) was the cause of deteriorated games.

After studying the illustrations in Wright's Book of Poultry, and discovering so many characteristics of the Malay, we suspect deteriorations of courage, and should require to see the usual tests applied before believing otherwise with regard to birds of that style.

From the foregoing remarks it may be gathered we are not favorably inclined towards the standard of the modern game fowls portrayed in the book by Mr. Wright. To any one who wishes such, we have but little to say, a few crosses with our *bete noir* (the Malay) and they can have the present style of bird, with his doubtful courage (even where the art of selection has been carried to the sixth generation). To those who still indulge in the amusement of pitting their fowls, it is unnecessary to say anything. With them a craven has but one remove; viz., from the pit to the pot. There are however a goodly number of persons who though never expecting to fight their birds, yet wish them to be of undoubted courage. To such we say, avoid the thin hackled, whip-tailed exhibition birds as you would the plague. Procure a cock that has been the bearer of the steel and test, or have his young ones tested in the usual way. Many gentlemen do this, and they breed to the purest feather also.

#### Laying Qualities of Brahmas.

Mr. B. N. Pierce, of Corning, Iowa, communicates the facts given below to the *Poultry Record* :—

Desiring to know more of the productive qualities of Light Brahmas, I made an effort last season to experiment with one pullet, selecting her from a pure blood of last year, and keeping her separated from others of her variety. She commenced laying on January 12th, 1873, and laid eighty-three eggs before becoming broody; up to this date, August 1, 1873, she has laid 136 eggs. The manner of keeping the record, or count, of the number of eggs laid, was, to let the last egg remain in the egg-basket until the next was brought in, and to mark the number of each egg on itself, so that there was no chance for an error. The hen was pure bred, and from one of the leading strains of Light Brahmas. She has been kept in confinement from January 1st, except each day since April 1st, she has been given her liberty after 3 p.m., and during the whole time has had but little animal food. One half-bushel of corn, and twenty-five pounds of wheat screenings, and, now and then, bran and shorts mixed, all told, not to exceed one bushel of grain, has been her feed, and would not cost over fifty cents.

## Entomological Department.

### Annual Address of the President of the Entomological Society of Ontario, 1873.

To the members of the Entomological Society of Ontario

GENTLEMEN,—Ten years have now gone by since a few of us met at the house of Professor Croft, in Toronto, and organized this Society. We commenced with less than five and twenty members, and now our Secretary informs us that we have over three hundred names upon our roll. A twelve-fold increase in a decade of years is certainly an evidence of progress upon which we may well congratulate ourselves, and which ought assuredly to stimulate all our members to use their utmost exertions for the maintenance and improvement of the Society. Those of us who from year to year have been entrusted by you with positions of office and duty in the Society, cannot but feel that it is for the best interest of our institution that more of its members should be led to take an active part in its work, and thus secure more efficiency in all our departments, and more certainty of a permanent development of all our operations. Hitherto the work has fallen upon a few of us, and we have endeavored to perform it as efficiently and heartily as we can, but we find that year after year our own professional and other duties make increased demands upon our time and attention, so that with all the desire in the world to devote ourselves to our favorite branch of Natural Science and the operations of the Entomological Society, we are unable to do so to the same extent as in earlier years. On this account—not from any diminution of zeal and interest on our own part—we are most anxious that more of you should take your share in the work and aid us in maintaining unimpaired the good reputation that the Society has already achieved. Each one, we are sure, can do something, and the united efforts of us all must assuredly be productive of satisfactory and permanent results.

Our sister Society—the Fruit Growers Association of Ontario—we rejoice to see is rapidly growing in public appreciation and favor, its members' list of over 3000 names, its well-attended meetings in various parts of the country, its judicious distributions of fruit for experimental purposes, and the vigor and zeal of its executive, are all matters upon which we may well congratulate its President, Directors and Members. That it may go on and prosper, and extend its work throughout our land, till every resident in the Dominion enjoys the fruit of his own vine and his own fruit tree, is our most hearty aspiration.

During the past year but little has occurred in an Entomological point of view that calls for especial notice on this occasion. A year ago I ventured to call your attention to the subject of Specific and Generic Nomenclature, which has been so unpleasantly exciting the minds of entomologists both here and almost everywhere else. My remarks, I was gratified to find, elicited a good deal of discussion in the pages of the *Canadian Entomologist*, and brought forth a very able paper upon the subject from the pen of Mr. W. H. Edwards, of West Virginia. The question, however, has by no means yet been set at rest and will no doubt continue to exercise us all for some time to come. At the Dubuque Meeting of the American Association for the Advancement of Science, a sub-section of Entomology was formed, and a committee of its adherents specially appointed to consider and report upon a series of rules upon nomenclature. Unhappily, owing to various circumstances, no report was drawn up, though I must in justice state, that my friend Mr. C. V. Riley, of St. Louis, took a great deal of pains to elicit the views of the members and to draw up some conclusions from them. Last month, at the Portland meeting of the Association—which, to my very great disappointment, unavoidable engagements prevented me from attending—a new committee was appointed to re-consider the subject, and we trust that some definite rules will have been decided upon by its members before the meeting of next year at Hartford, Con.

You will all, I have no doubt, be gratified to learn that, upon the suggestion of the sub-section of Entomology, the American Association unanimously passed a resolution inviting our Entomological Society of Ontario, as well as the American Entomological Society, to hold a general meeting of our members at Hart-

ford next year during their annual session. I trust that this invitation will be cordially accepted and that a large number of us may there meet our American friends and enlarge and strengthen those cordial feelings of scientific brotherhood which have so long pleasantly existed between us. I may add, as a notable token of the estimation in which our branch of science is now held, that the Association will meet next year under the presidency of our ablest American Entomologist—Dr. J. L. Leconte, of Philadelphia.

You have already heard from our Secretary-Treasurer's Report the satisfactory condition of our finances and other business matters; I need not therefore trespass further upon your patience and attention. Heartily thanking you, gentlemen, for your kindness towards myself and my colleagues during our term of office, and for the honor which you have conferred upon me by calling me to preside over you.

I have the honor to remain, with the best wishes for the advancement and prosperity of the Society,

Your humble and obedient servant,

CHARLES J. S. BETHUNE,

Pres. of Entomological Society of Ont.

Trinity College School, Port Hope, Sept., 1873.

### Gizzards of Insects.

Everyone knows that turkeys, fowls, geese and many other birds that take their food by the peck, are supplied with gizzards, and that such birds swallow grains of sand, small pebbles, and other hard substances with their food. The action of the gizzard upon this mixture may be easily understood; the hard substances are made to do the duty of teeth, by crushing and grinding the softer ones to a pulp, so that teeth in the mouth of a fowl would be out of place. Many who know all this may not be aware that several insects have gizzards too, and still more wonderful. The gizzards of insects are much more complicated affairs than those of birds. If the gizzard of a cricket be laid open, it will be found lined with rows of formidable teeth—a good substitute, you will say, for the sand and pebbles taken into the gizzards of birds at every meal; and as these teeth are permanent, they no doubt save the possessor of them a vast deal of trouble, unless indeed the cricket should ever be subject to the toothache. The gizzards of insects are not all alike; some are lined with teeth, some with plates, some with horns, and some with bristles, but in every instance the apparatus is a very wonderful one. In a pretty little beetle not uncommon in some localities, and with a name much longer, perhaps, than the longest to be found in the register, the gizzard is about the size of a common pin's head, and is armed with more than 400 teeth; imagine what the number of muscles must be to set all this machinery in motion, and keep up its action upon the food. In some species it amounts to many thousands.

SCALE OF HAWK MOTH.—However much we may have differed from each other in the character of our pursuits through life, one experiment we have nearly all of us tried in our tender years and failed in—I mean that of catching a butterfly or moth on the wing without rubbing off a quantity of fine powder from its body and wings. In light colored moths this powder is so much like fine flour or meal that it is probably from this circumstance that they get the name of "millers." Place a single particle of this fine powder from the wing of the hawk moth under the microscope. It is not much unlike a feather, with a stem at one end, as if it were made to fit into a socket; and so it really did when it was in use. In butterflies and moths (even the little pest that takes such unwarrantable liberties with our boas and muffs) thousands of these sockets may be found on both sides of each wing, and they are so arranged that the scales that are planted in them lie in very regular rows, each row overlapping a portion of the next, like tiles on the roof of a house. All the colors and beautiful markings on the wings of these insects are entirely owing to the different colors of the scales themselves; and if these are brushed off, the socketed surface in which they were planted will be as nearly colorless as a fly's wing. The fine dust, then, that glistens on your thumb and finger when you have rudely held a butterfly's wing between them, is a pinch of beautiful scales of curious forms and many different colors, and in a few insects these scales, when examined in a proper light through the microscope, are so inconceivably dazzling and beautiful, that they are not to be surpassed by the most brilliant clusters of precious stones in anything but size and value.—*H., in The Field.*

## Miscellaneous.

### Boot-Blacks.

Englishmen visiting this country are apt to forget that servant-girls refuse to perform several services devolving upon them in the old country. Cleaning boots is one of these. In England the master of a house where even only one servant it kept sends his boots to the kitchen every morning to be cleaned, and if he comes to the United States he naturally supposes the same office will be done for him by the same hand. When the Rev. Newman Hall was in Oberlin, the guest of President Fairchild, on the morning after his arrival sent his boots below for an obvious purpose. They were not returned to him when the bell called him to the breakfast room, and he appeared in his toilet slippers. Pres. Fairchild noticed this, and he also noticed a pair of strange boots in a strange place. He would probably have as soon thought of asking the kitchen-maid to verify a quotation for him as to black his visitor's boots, and so he blacked them himself. The Oberlin Times in narrating this anecdote, divertingly adds:—"This is only another circumstance confirming the truth that no man, whether his station be high or low, ever comes to Oberlin but that in departing he carries with him, in some form or other, more or less of the native polish of the place"—*Farm Journal.*

DISCARDED PAPERS.—Here is a hint for Young Men's Christian Associations.—Most American travellers throw away much of their reading matter at their journey's end. But in England, at each station can be found a box fastened up, very similar to our letter boxes, into which the traveller puts his papers, books, etc. These are, in turn, collected by men, who carry them to hospitals, homes for old men and women, and similar institutions, where they are gladly received.

DANGER FROM WET CLOTHES.—Few persons understand fully the reason why wet clothes exert such a chilling influence. It is simply this. Water, when it evaporates, carries off an enormous amount of heat in what is called the latent form. One pound of water in vapor contains as much heat as nine or ten pounds of liquid water, and all this heat must, of course, be taken from the body. If our clothes are moistened with three pounds of water—that is, if by wetting they are rendered three pounds heavier—these three pounds will, in drying, carry off as much heat as would raise three gallons of ice-cold water to the boiling point. No wonder damp clothes chill us.

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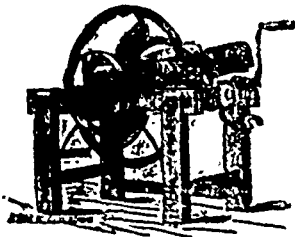
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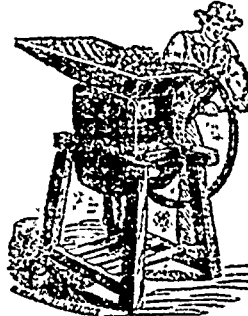
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**CONTENTS OF THIS NUMBER.**

**THE FIELD:**  
 Economy of Wood Land..... 433  
 The Attractions of Agriculture..... 433  
 Slab and Stone Drain..... 434  
 Ashes, Gypsum &c., as Manure..... 434  
 Economy in Hedging..... 434

**GRASSES & FORAGE PLANTS:**  
 Grass Lands Self-Sustaining..... 434  
 Indian Corn in Eastern States..... 436  
 Hungarian Way of Preserving Corn-Fodder..... 435  
 Orchard Grass..... 435  
 Husking Corn..... 435  
 Raising Clover-Seed..... 435  
 Early Cut Grass Best..... 435

**IMPLEMENTS OF HUSBANDRY:**  
 A Lock-Nut Bolt, (III.)..... 435  
 Potato-Plough..... 437  
 The Harrow..... 437  
 A New Straw-Cutter..... 437  
 Velocity and Motion..... 436  
 Root and Straw Cutters..... 436  
 Grain Binder for a Reaper..... 433  
 Steel Bars for Belts..... 436  
 Savel Ploughs..... 433  
 Patent Tree Digger..... 436  
 Items..... 435

**RURAL ARCHITECTURE:**  
 Designs for Bams, (III.)..... 437

**HORTICULTURE:**  
**THE ORCHARD:**  
 Best Twenty Varieties of Pears..... 433  
 Protecting Trees in Winter..... 433  
 The Apricot..... 433  
 The Early Richmond Cherry..... 433  
 The Mary Pear..... 433  
 Items..... 433

**THE VEGETABLE GARDEN:**  
 Market-Gardening..... 439

**THE FLOWER GARDEN:**  
 Among the Roses..... 440

**THE DAIRY:**  
 Making Cheese from One or Two Cows..... 441  
 Stable Floors (III.)..... 441  
 Box Stalls for Cows..... 441  
 Washing Milk-Dishes..... 441  
 Butter for the Store..... 442  
 Bruce's Cheese Factory..... 442  
 Butter for Winter Use..... 442

**AGRICULTURAL CHEMISTRY:**  
 Varieties of Soil..... 442  
 A Local Knowledge of Farming..... 442

**EDITORIAL:**  
 Country Manners..... 443  
 Ontario Agricultural College..... 443  
 Illustrated Annual Register of Rural Affairs..... 443  
 "Murray's Perfect Horse"..... 441  
 Ontario Veterinary College..... 444  
 The Live Stock Business..... 444  
 Items..... 444

**AGRICULTURAL INTELLIGENCE:**  
 Mr. Arch at Bow Park Farm..... 444  
 A Chicago Pork-Packing House..... 444  
 Prolific Culture of Flax..... 445  
 Short-horn Intelligence..... 445  
 The Fruit Crop in England..... 445  
 Canadian Cheese in British Markets..... 445  
 U. S. Poultry Shows..... 445  
 Large Private Sale of Short-horns..... 446  
 Stock..... 446  
 Fish Culture in the States..... 446

**BREEDER AND GRAZIER:**  
 Fashion and Utility in Short horn Breeding..... 446  
 Curing and Preserving Meat..... 447  
 Wintering Lambs..... 447  
 The Stock on the Farm..... 447  
 Items..... 447

**VETERINARY:**  
 Influenza in Horses..... 448  
 Gresse and Scratches..... 448  
 Arsenic for Swine..... 448  
 Pigeon-Toed—a Wonderful Operation..... 448  
 Items..... 448

**POULTRY YARD:**  
 Poultry Process in Canada..... 449  
 Blood in Breeding, etc., (Continued)..... 449  
 Deteriorated Games..... 450  
 Laying Qualities of Brahms..... 450

**ENTOMOLOGICAL DEPARTMENT:**  
 Annual Address of the President of the Entomological Society of Ontario, 1873..... 451  
 Gizzards of Insects..... 451  
 Scale of Hawk Moth..... 451

**MISCELLANEOUS:**  
 Book-Blacks, &c..... 451  
 Advertisements, &c..... 452



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