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THE CANADA FARMER

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The Field.

Wanted—A New Late Potato.

The Peachblow has long maintained its place at the head of the list as a potato for eating in winter, spring and early summer. At its best, it possesses in an eminent degree two valuable characteristics—solidity and mealiness. Other potatoes of equal solidity, generally are soggy when cooked, and are consequently unacceptable. But a well-cooked Peachblow will have a very substantial taste, and resembling a cereal, and at the same time appear nearly as light and dry as flour.

These two meritorious qualities in the Peachblow have covered a multitude of faults, or demerits, and been the cause of its covering a greater breadth than any other potato, and leading in price in our principal potato marts. We will now briefly sketch its principal demerits:

1. It has too much top. The tops of potatoes probably exhaust the soil of its organic matter quite as much as the tubers. Of two varieties of potatoes equally valuable in other respects, we should give decided preference to the one that had the least tops in proportion to tubers.

2. It scatters too much in the hill, thereby increasing the labor of digging. The greatest portion of the labor involved in raising potatoes is expended in digging them. Every farmer knows the difference in digging between the Old Mercer, or the Early Rose, and the Peachblow.

3. The greatest demerit, however, is its lateness, or the long season required to complete its growth and maturity. In our climate it is very desirable that a potato shall be fully matured by the first of October. A variety not matured at that time will be quite likely to have its growth arrested by frosts before it is ripe, or if not, to continue to grow so late as to be in danger of freezing before it is dug

There are other minor objections to the Peachblow, its form is not favorable to baking, it is decreasing in productiveness; it is specially liable to a peculiar form of leaf-blight, and from its long season we think it will be exceptionally exposed to the ravages of the potato beetle. The third and last generation of the beetle, is by far the most numerous one, and they find the haulm of the Peachblow in full vigor, and concentrate upon it.

But what shall we substitute for it? This is a question which we are not as yet prepared to answer. We are not aware that the potato has yet been introduced that has the peculiar merits of the Peachblow without its faults. But we know no reason why the sense and perseverance in crossing that has produced many valuable summer varieties, may not yet be rewarded by producing a winter variety, nearer perfection in all respects than any we now have.—*American Rural Home.*

SOW ONLY PLUMP SEED.—It does not pay to buy shrunken wheat or seed grain of any kind to sow. If you buy seed wheat, insist upon perfect kernels—the larger and plumper the better, since this is essential to the health of the plant. Shrunken or shrivelled seed may germinate, but the absence of a sufficient quantity of starch to supply nutrition for its early development may cause it to perish before it takes root in the soil.

The Drill System of Grain-Sowing.

A correspondent wishes to know what are the advantages of drilling in grain, as compared with the common method of broadcast hand sowing The question has been answered in these columns time and again, but it is always a good thing when interest and curiosity are awakened respecting agricultural practice, even if it occasions repetition of statements already put in print. We have pleasure therefore in summarizing briefly once more the chief points of superiority in drill over broadcast grain-sowing. They may be classed under three heads

1. Better Work.

The seed is evenly distributed, buried at a uniform depth, put into the most favorable condition for quick and simultaneous germination, and the field left in a neat workmanlike state.

2. Economy of Seed.

By drilling in the seed, a bushel per acre may be saved. This may seem at first incredible, but careful experiments have proved it, and a little reflection will show that it is not after all so improbable as it may seem. In the first place, there is no waste when the drill is used All the seed is deposited in the soil, and none left on the surface as a lure to birds or a prey to the elements Again, the seed being evenly scattered, there is no loss by overcrowding in some spots, and scarcity in others, as must be the case, more or less, with broadcast hand-sowing Especially does this condition of things occur if there is high wind when the sowing is done. The drill can be used no matter how stiff a breeze may be blowing. But even on the calmest day there will be irregularities in hand-sowing which are totally avoided by means of the drill. Further, a comparatively thin seeding, such as may be secured by the drill, gives room for each plant to spread itself to the utmost On this plant, the braird, though looking thin at first, will "tiller out," as the saying is, and the stools of wheat will obtain a strong growth, covering the ground evenly and occupying it thoroughly

3. Quantity and Quality of Product

Of course a bushel of seed saved is no gain if it is done at the expense of the crop. But this is not the case. The increased "tillering" already referred to, implies a multiplication of stalks, and consequently of ears. A needless profusion of seed causes feebler stalks through overcrowding, and the yield of grain is less than if there had been fewer stalks better developed and more fit to sustain and nourish well filled ears. We have no definite statistics at hand, but suffice it to say, facts have proved beyond question that the advantage is all on the side of the drill, so far as quantity of product goes. The same is true as to quality. A plumper, more uniform berry, and better straw even are thus obtained.

In view of these considerations, it will be seen that the first outlay involved in the purchase of a drill is a mere trifle compared with the profit resulting from its use.

Raising Wheat.

At the recent New York State Fair, held in Rochester, a well-sustained discussion took place on the above subject. According to the report given by the *Country Gentleman*, two things were considered specially important,—drainage, and keeping the manure that is applied at the surface. Science teaches this, and practice confirms it Under-drained land, if clay, is often more or less wet. Wherever this is the case, the frost in the spring, and also during the winter, *if open, will lift it*, throwing out thus yearly a large amount of the grain, in some years seriously affecting the crop. This we have reported of some sections every year. It is on clay soil principally that this takes place, and *always* where undrained or poorly drained. A thoroughly porous (drained) soil will *never* have wheat lifted out, because there is not water enough for the frost to act upon.

To bury the manure (by ploughing under) and put the wheat on the top, on the raw or unmanured soil, is in effect not to manure at all, so far as the start of the crop is concerned; and the start has much to do with success. Then the manure buried will lose some of its substance, and the best part—the nitric acid—for which the soil has no attraction. Each rain takes some of this from the soil, and the more readily, as it is already well on its way, being put down by the plough The point is to have it at the surface, where the grain can at once feed upon it, and as the roots extend downward in their growth, they keep pace with the sinking material. Thus, if not too much is applied, most if not all of this will be saved. Hence frequent and somewhat light manuring is most profitble. There are other elements besides the nitrates—lime, for instance—that are fugitive in their character. To harrow in manure with the grain, or to apply it afterwards, finely and evenly distributed, is the true doctrine In this way, and with drainage, you are pretty sure of a good crop, providing always you have your land in a mellow condition, a point insisted upon, and justly, in the discussion, for the plant receives its nourishment, not alone from the water holding it in solution, but takes it also directly from the soil, the roots having that power. This they cannot do successfully if the contact is slight, as in the case of coarse, lumpy soils. Fine, compact soil (not hard), hugging the roots closely throughout, is what is wanted, especially for wheat, and no soil does this so well as a pulverized, drained clay soil. Such a soil is also lasting, and holds manure well. And here let me make a point: It is well to use mechanical means to fine the soil, in order to reduce the clods. It however helps the growth of the crop but little, as it only reduces the large lumps to small ones, all alike—of little, though some use to the plant. What is held by these lumps is generally locked away from the plant. You want a fine, disintegrated condition of the soil. You have to rely upon the elements mainly to give you this; the frosts of winter, it is well known, are an advantage, as they reach the minute particles, separating and comminuting them. So the sun, in connection with moisture, produces much the same results. Hence the mellowing effect of a fallow. The two together—ploughing in the fall and working the soil the following summer—will reclaim almost any soil. The clod-crusher and harrow will never do it.

Starving the Land.

It is not often one comes upon so good and timely an article on practical farming in an ordinary newspaper, as the following editorial, which we cull from the *Collingwood Bulletin*. Such articles would benefit the country far more than the political squabbling, village gossip, and silly tales too often found cumbering the columns of our local newspapers. Since our contemporary can do so well in the agricultural line, we hope he will try his hand again, and often.

Last week we gave a number of statistics showing the rapid development of the butter, cheese and egg trade in Canada, and briefly drew attention to the fact that this increase had not caused a reduction in the prices of these articles. Butter is higher and scarcer to-day than it has been for many years, while the price of cheese and eggs is, as a rule, better also. All kinds of dairy produce have advanced in price, and beef, pork and mutton have followed suit. With these facts before them we would respectully call the attention of farmers to a subject which is of the utmost importance both to them and the country at large. Everybody will admit that our agricultural resources are the most important resources we have. Our lumber and minerals and fisheries would be of small consequence indeed if we had to depend upon them independently of the products of the soil. The market for lumber is uncertain and the supply limited; only a limited number of men can find successful employment in fisheries; and mining is in most cases a species of lottery in which blanks are much more numerous than prizes. Upon the agriculturist rests the hopes of our national prosperity. But agriculture itself must be conducted upon sound principles, or it may fail. Some people seem to imagine that the soil needs but to be ploughed and the seed sowed in order to secure an abundant harvest. If wheat is found to be profitable the land is sown with wheat, and year after year, without interruption, its resources are drawn upon to yield the "golden grain." The farmers of this township take a sort of pride in believing that theirs is the finest wheat-growing township in Canada. But unless a different system be adopted this pre-eminence must soon be known only as a remembrance. There are fields in Nottawasaga which have yielded crops of wheat for fifteen years or more successively, and now the crops begin to show symptoms of that sickliness which is the inevitable consequence of starving the soil. If this state of things is permitted to go on many years longer we fear the result will be most disastrous. It is a fact well known to scientific farmers that the elements which go to make up any particular kind of vegetable growth are contained in the soil only in limited quantities. When these become thoroughly exhausted the land is barren and good for nothing, and years of constant fertilization will be necessary before it can be brought back to its normal condition. Those farmers who neglect to remember that land should be supplied continuously with a certain amount of artificial nourishment while it is producing heavy crops, must look forward with gloomy anticipations to those coming years of barrenness when the soil will be tilled in vain, and the seed sown will give no return. That these years will come is absolutely certain, unless some effective means be adopted to save the land. They may be long delayed where soil is strong, but their coming is none the less sure. The remedies are themselves simple and abundantly plentiful. Every year the land which has been producing heavy crops should be manured. Or if manure cannot be obtained in sufficient quantities, the evil may be mitigated if not entirely avoided by a judicious change in the kind of crops. Wheat fields should be relieved by something which does not require the elements necessary for the production of wheat, and their energies will thus accumulate. But there is another remedy to which we wish to call special attention, and that is the raising of more stock. When butter is selling for 25 and 35 cents a pound butter-making must be a profitable business, and there is not much danger of the butter market being overstocked. The English market has for many years absorbed a large quantity of Canadian butter, and will continue to do so. Then there is cheese, which can be manufactured with equal profit. If farmers would let some of their over-cropped fields run into pasture and fill the pastures with a good stock of cattle, they would not only materially enrich the soil, but would at the same time enrich themselves with the profits of a well-conducted dairy. We commend this subject to the serious attention of our agricultural readers, and feel persuaded that if intelligently put to the test, the plan will be found to result in immense good.

Cheap Fencing.

The cost of fences is becoming a serious matter in all parts of this continent, even those where timber has heretofore been most abundant. In the Western States there has always been a scarcity of fence material, and the result has been a sharpening of wits to devise ways and means of doing the thing with as little cost as possible. An Illinois correspondent of the *Southern Planter and Farmer* details a method employed by him which may prove suggestive to some of our readers. A Virginia farmer commenting on this plan, advises the substitution of cut wire staples (grape staples) for the holes in the posts, and also notching the rails, where they rest on the wire loops, to prevent slipping.

Having come into possession of a farm in Albemarle county on which there is a small supply of timber suitable for fence-rails, and the fencing on the place being in very bad condition, I have been much exercised on the subject of cheap fencing. The ordinary stake fence, or worm fence, if adopted would consume all of my available fencing timber, and leave my place still but badly fenced. The ordinary post and rail fence, though requiring much less timber, would cost more than I could well afford, besides the time required to construct it.

After much thought, I have hit upon a fence that suits me admirably; and as I suppose there are many farms in the condition of mine, viz: badly fenced and scarce of timber, I am disposed to give their owners the benefit of my invention. To make the fence, get out posts as you would for a post and rail fence; instead of mortising the posts, *bore through them just about where* you want the rail to come, a small hole—half or three-quarter inch will be large enough—and through this hole pass about 18 *inches of baling wire*, tying the ends so as to form a loop large enough to contain the ends of two ordinary fence rails; then set the posts in the ground as you would to make a post and rail fence, except that the flat side of the post shall be parallel with, instead of perpendicular to the direction of the fence, then insert the ends of your rails in the wire loops (ordinary fence rails will do), so that all of the ends of one panel shall be on one side of the post and the ends of the next panel on the other side of the post, thus balancing the weight on the post and tightening the wire-loop so that it holds the rails firmly in place. The posts may be smaller than in the ordinary post and rail fence, as they are not weakened by mortises. If a mere temporary fence is desired, an ordinary fence stake may be substituted for the post, by the use of a crow-bar in making the holes, then driving the stakes in with an axe. The fence may be rapidly put up, and as rapidly taken down for removal.

This fence, with the posts inserted the usual distance in the ground, will stand firmer than the usual post and rail fence, because the wide side of the post will be parallel to the fence and present a wider surface of resistance to any force pressing against the fence. The great saving in avoiding the expensive mortises and troublesome fitting of the rails in those mortises necessary in the ordinary post and rail fence will be obvious at once. The wire-loop which takes their place will, at present prices (12 cents per pound), cost from one cent to one and a half per panel according to the number of rails desired in the fence. The wire will outlast the post or rail, and if properly tied will be amply strong to sustain any weight that the rails will bear.

I am so much pleased with this fence that I expect to substitute it altogether on my farm in the place of my worm and stake fences as they give out.

Summer Fallowing.

George Geddes is in favor of summer fallowing as the most effectual method of eradicating couch grass and other inveterate weeds, but thinks it will not pay unless foul plants have taken such possession of the soil as to render desperate measures necessary for their extirpation. He summer fallowed ten acres of good land badly infested with couch grass; got rid of the pest, and obtained thirty-eight bushels of wheat to the acre; but this excellent yield of course represented two years use of the land, and was therefore only equivalent to nineteen bushels per acre as one season's product.

Mixing Lime, Gypsum, Ashes &c., with Manure.

A correspondent of *The Western Rural* inquires:—"Would you advise mixing quicklime, ashes or plaster in the compost heap, or in the liquid manure vat? Would it not be a good way to get these elements into the soil; or would it be better to sow them separately, or mixed, directly on the land? Is muck a good absorbent of the liquid and gaseous portions of manure? Will it pay to haul it a mile or more for that purpose?"

The editorial reply is as follows:—We should not advise mixing either quicklime, ashes or plaster (gypsum) with green manure, for compost; certainly not in the liquid manure vat. If the liquid manure is offensive to the smell, a solution of copperas would be more proper, since, in its action in deodorizing, it forms two valuable compounds. The action of quicklime is to set the ammonia contained in the manure free. If this be not absorbed by peat, muck or other absorbents, it passes into the air and is lost.

If we mingle an equal bulk of gypsum and carbonate of ammonia, both in fine powder, it smells strongly, for ammonia is set free and volatilized. If it be drenched with water to the point of supersaturation, the ammonia is then fixed until the water is dried out, when action again commences. Thus you will readily see why these compounds of lime should not be used in composts.

If to the liquid manure, copperas, in the proportion of half a pound dissolved in each gallon of water used, be thrown into the liquid manure, the quantity to be determined by the cessation of odor, both the ammonia and the sulphuretted compounds are seized and held until, being incorporated with the soil, they are again given up to plants.

We therefore advise, in making compost with green or fermenting manures, to use dry muck, peat, earth or loam, as an absorbent, in regular layers, using just enough water to keep up an active fermentation. That there may be no escape, the top and sides must also be covered. After the fermentation has ceased, the heap may be turned once or more, to thoroughly mix and disintegrate the mass, when it will be in the best state for application to the land.

Dry muck, peat, earth, clay, etc., are the best absorbents available on the farm. We should prefer to sow the lime, gypsum or ashes separate, rather than to mix them with the manure. There are so many contingencies and chemical changes connected with the making of manure, that the subject is a study in itself. A careful perusal of the works specially devoted to this subject, will be found to pay.

A Run-down Farm

The *Country Gentleman*, in replying to a correspondent who inquires how to make an exhausted farm fertile, after premising that there are special circumstances to be taken into account in every such case, lays down the following general principles in view of a soil which, from continuous hard cropping, has been deprived of the vegetable matter it once contained, and settled down into a compact, hard mass:—

1. Underdraining, if the soil settles down in a mass after long rains.

2. Mellow cultivation when dry enough, pulverizing the soil well as a preventive of drouth.

3. The introduction of clover, to be preceded if necessary by a moderate dressing of manure, or by some other green crop.

4. Working most of the farm into grass, for the maintenance of domestic animals, and for the manufacture of manure.

5. As the improvement progresses, planting or sowing such crops as appear on trial to do best, such as corn, beans, barley, &c., preferring a variety or rotation.

MANURE FOR WHEAT.—The *Delaware State Journal* says.—Wherever organic matter abounds in the soil a free use of bones and potash will speedily restore it to its original fertility. In sandy soils organic matter in the form of peat, muck, or leaf mould should be combined with the bones and potash. The finer the bones are ground the more speedy their action. If the bones are ground in a raw state, that is, without steaming or burning, and ground very fine and mixed with three times their weight of fine muck or peat, or leaf mould, and kept moist for three weeks before being used, they will generate all the ammonia necessary to the rapid growth of wheat or other growing crops, without the addition of other substances.

Grasses and Forage Plants.

"Grasses, Meadow and Pasture."

The above was one of the topics discussed at the recent New York State Fair, and from its importance in connection with the dairy interest, now of such magnitude in Herkimer and Oneida counties, was gone into very thoroughly. Hon. X. A. Willard introduced the subject in an address of great practical value. He referred at the outset to the value of the grass crop in the United States, which, inclusive of pasturage, he estimated at a thousand millions of dollars for the present year. In 1869 the cotton crop of the U. S. was valued at $303,000,000, the wheat crop at $375,000,000, and the corn crop at $450,000,000, so that the meadows and pastures do not fall very far short of being worth as much as all three of these important products put together.

Mr. Willard then proceeded to discuss the varieties of grass best adapted to our use, and the manner in which they may be most successfully grown. Though the grass family is a large one, embracing several hundreds of varieties, the ordinary farmer is acquainted only with a very few of them. The grasses are social, and thrive well when different kinds are grown together. A denser and more permanent growth can be thus produced than if only one or two varieties are put in sole possession of the soil. Two lines of policy present themselves, the one for pasture and the other for meadow. For pasture a succession of grasses ripening at various periods is wanted to keep up a constant bite, while in meadows a simultaneous ripening is necessary to make a good quality of hay.

Mr. Willard's remarks about certain evils afflicting many old pastures, are so good, that we copy the report as given in the *Utica Herald*:—

"In the first place, many pastures are habitually overstocked. By this practice the roots of grasses and the whole plants are kept so small that their growth is feeble, and not one-half the feed is afforded that the land would produce if stocked lightly a year or two, and the grass allowed to get a good thrifty start. But this is not the only disadvantage from overstocking. The feeble growth of the grasses allows other plants to creep in, and the ground soon becomes overrun with weeds, which, on account of their not being cropped by stock, grow in great luxuriance, maturing their seed, and thus impoverishing the soil. The curse of American farming to-day is weeds. Whenever they get full possession they become so formidable that the farmer is often disheartened, and gives up their eradication. Many farmers, too, have an erroneous notion in regard to the destruction of weeds on grass lands. The impression often prevails that the only way of getting rid of weeds is to break up and thoroughly cultivate the ground in hoed crops. This is not always convenient or even desirable, for in many cases on dairy farms it cannot be done without breaking up the herd or dairy, while some uneven surfaces cannot be ploughed. There is another way of killing weeds, such as the daisy and that class of plants, by the liberal use of manures and grass seeds. I have eradicated white daisy, in several instances, by simply applying farm-yard manure and gypsum, and strewing the ground with a heavy seeding of clover. Establish your clover upon the soil, and feed it until it is luxuriant, and it destroys the daisy and other weeds by a system of plant-garrotting—strangling it and choking the life out of them. Then some weeds may be killed by frequent cutting, and not allowing them to seed. It is always advisable to pull up or exterminate bad weeds on their first appearance in pastures, and not allow them to spread."

Mr. Willard gave his opinion very decidedly in favor of pastures that had been long in grass, and condemned the practice of frequently breaking up grass lands, which is so much in vogue on this continent. He spoke of pastures that have been in grass for sixty years and more without showing any signs of failure. For dairy and feeding purposes, these old pastures are far better than those more recently seeded down. To obtain a good thick sod is the work of years. Only in case of utter failure to produce, ought grass lands to be ploughed up and re-seeded. If they begin to fail from over-cropping and neglect, a judicious course of top-dressing and sowing seed will be found preferable to the plough. The application of plaster every alternate year, at the rate of from one to two hundred pounds per acre, was recommended, and Mr. Willard had found great benefit from the use of ashes in connection with plaster, at the rate of two or three barrels per acre.

Mr. Willard thinks that all pasture lands in the dairy region would be greatly helped by the use of bones, as this material is largely taken from the soil in the shape of milk. The phosphates form an important part of the nutriment on which the finer and more nutritious grasses feed, so that the best results may be expected from the application of bone manure to old dairy lands. Dr. Voelcker was quoted as holding similar views as to the benefit of using bone manure on dairy lands.

Mr. Willard urged a more liberal supply of seed than is commonly sown, in putting land down to grass. When he first began seeding meadows to clover and timothy, he used about four quarts of timothy seed; but subsequently found that half a bushel, or even more, gave better results. He once saw a meadow of orchard grass which had yielded for several years at the rate of four tons to the acre, and it had been seeded at the rate of two and a half bushels of seed to the acre. He concluded by recommending orchard grass as one of the best grasses for cultivation, both in pastures and meadows. It springs up very early in the season, and affords a good bite several days earlier than most other grasses.

A well-sustained discussion followed Mr. Willard's address, the most interesting points in which we summarize briefly. Hon. L. T. Hawley asked if Mr. Willard had ever brought to a pasture badly covered with moss. Mr. Willard accomplished it with ashes and lime. He had used from a hundred to a hundred bushels and upward of lime to the acre. It was air slacked, refuse lime. The soil was Utica slate. Probably this would not do on all soils. The lime was spread in the winter. In the spring it was harrowed well.

Mr. W. H. Cole, of Lewis county, had tried to eradicate moss without ploughing and re-seeding. He used plaster and accomplished it. He applied four bushels to the acre. He has now cut two tons from the acre. On a bad piece he had applied five bushels to the acre, and now there is not a rod of moss on the field. The plaster was sowed early in the spring, but Mr. Cole does not know which is the very best time.

There was some discussion about the value of different kinds of plaster, and it was determined that great care should be taken to select and to buy that which was found good.

Mr. Brown of Westmoreland had gained better results with raw than with composted horse manure. Mr. Willard always made it a practice to use horse manure on his pastures and cow manure on his meadows. Stock do not seem to relish grass grown from cow manure. Several members corroborated the statements as to the superiority of old pastures both for milk and beef. In giving his testimony to this effect, Mr. Holbert, of Chenning county, said: Some fields I have to plough; some fields have never been ploughed. This produces more pasture than any field upon the farm. Ground for seeding should be prepared as carefully as for a grain crop. I have done this and sowed the grass alone, and the result has repaid the labor. As to plaster, I find that some soils are altered more than others. I find better results from plaster on newly seeded lands than old pastures."

J. F. Barton, of Oneida, said: "I find old pastures far better than re-seeded. I have not had them run out. They have been in pasture sixty years, and are still good. In some cases we have had benefit from plaster; sometimes no benefit. I have not seen any effect of plaster in killing or increasing moss. We have found that repeating plaster on the same land diminishes its effect. Some years it did better than others on the same land. We carry one creature to two acres on our best pastures."

Mr. Diefendorf, of Montgomery, said: "I believe old pasture lands give the quality but not the quantity. Turn over the old sod and grow a big crop of corn. Next year grow small grains; next again grow a crop of wheat, and then seed it with clover, and you will get three or four tons of hay to the acre. Then seed down. This is for meadows and it will do for pastures. Break up meadows every seven or eight years. I believe in regular rotation. We should grow our own corn and wheat. We have the first year our cornstalks to feed; cows will winter well on it. The next year we have our oat straw; the next our wheat straw. Straw will fill up and make good manure, if not very good feed. Then we have the clover, the best known forage crop, yielding three or four heavy crops."

Mr. D. Batchelor, of Utica, who was unable to be present at the State Fair discussion, writes a capital review of what was advanced to the *Utica Herald*. It is so sound and practical that we quote it almost entire:—

"Prof. Hunt says that 'perennial grasses are the true basis of agriculture in its highest condition.' It has been often said that grass is only another name for beef, mutton, bread and clothing. The Belgians say—No grass, no cattle; no cattle, no manure; no manure, no crops. It was my intention, had I been present at the late discussion, to speak of such grasses as I have repeatedly grown, on a limited scale, to test their enduring qualities, periods of ripening, and also adaptation to meadow for hay and pasture for good early and late grasses. In this work of testing grasses for our climate I have been kindly aided by the observation of others. And here I beg pardon for not only objecting to Mr. Willard, but to many high authorities who recommend perennial rye grass, either in meadow or pasture, in Central New York. I have made repeated attempts to grow it on Hon. Samuel Campbell's grounds and elsewhere year after year, and find that, notwithstanding its vigorous luxuriance, the first season from the seed it will not stand our severe winters—the entire patches disappearing in the spring, root and blade. Pacy's perennial rye grass is a dwarf, and is used in England as a pasture and lawn grass. I find it also only half hardy here. Tons of English perennial rye grass seed are yearly imported into this country for use in meadow mixtures. Would it not be well to try this variety alone in cold latitudes and ascertain its powers of endurance? Till better informed, I pronounce it useless in Oneida county.

Italian rye grass is perfectly hardy anywhere in this state, and is one of the most valuable meadow grasses known either to cut for green soiling or for hay. In vigor it is like orchard grass, but much finer in texture, and is of the 'cut and come again' kind, often producing two crops of hay in one season, and then leaving a rich aftermath.

Meadow fescue I have tested most thoroughly, and find it to be one of the hardiest and most vigorous of the English grasses, and equally adapted to meadow or pasture. I think that it equals timothy in the amount of hay, and like the Italian rye, it comes in late enough to cut with the timothy. Prof. Way says that it far excels any other fescue in the quantity of produce and nutritive value.

Meadow oat grass is one of the desirable, hardy grasses for meadow, as it is vigorous and luxuriant, with a peculiarly sweet and tender foliage, ripening nearly with the timothy, and producing good aftermath.

Fescue grass, and rough stalked meadow grass are perfectly hardy, and of great value in wet lands, but can hardly be recommended in a well-drained meadow.

Sweet vernal grass, though classed by the best authorities as a pasture grass, ought to be encouraged in the meadow for its fragrant odor, especially when made into hay. It has been called a vegetable condiment for cattle. I think that it is much more than that, at any rate cattle devour it with eagerness.

Mr. Willard recommends orchard grass in meadows. If by this he means orchard grass alone, or orchard grass with medium or June clover, so called, that will do; but orchard grass with timothy will not do, as it ripens so early that if left to be cut with the

timothy it would be not much better than dry sticks. Orchard grass makes good hay when cut just before the flower scape opens, but if left till the seed matures it is not any better than rye straw for feeding animals. My limited experience, together with the observation of those who have sown the mixture, leads to this result, that timothy, Italian rye, meadow fescue, red top, meadow-oat grass, and red clover ripen well enough together to make capital hay, and are well adapted to our climate, which after all is the great desideratum. The English can raise in their mild climate sainfoin, saradella, parsley, and various legumes that will not winter here; so, too, with some of the tender grasses. By combining the grasses above named, good heavy hay will be produced, and the sward less liable to heave in winter, while the timothy will be held in the ground for many successive years, thus avoiding the extra expense and labor of constant re-seeding. I am permitted to name Mr. Morgan Butler, of New Hartford, who will bear me out in the assertion that the grasses I have named for meadow ripened well together on his lands, and produced increased crops of deliciously sweet hay. Scores of others have had the same experience as Mr. Butler. The selection and proportion is per acre as follows: timothy, 10 lbs., Italian rye, 5 lbs.; meadow oat grass, 5 lbs; meadow fescue, 5 lbs.; red top, 5 lbs.; vernal grass, 2 lbs.; red clover, 8 lbs.

This selection might be varied somewhat in the separate amounts, but if followed out to the letter will make a good permanent meadow if the land be in fair average condition. Harris Lewis says wisely that the best method of improving meadows is to sow a sufficient variety of grasses, and not rely on clover and timothy alone. The same may be said of pastures and lawns, only that the varieties ought to be different from the meadow mixture, and composed of early, medium and late grasses. Until more and better attention is paid to the improvement of pastures and meadows, in fertilizing and selection of herbage, a high position as agriculturists and dairymen cannot be attained by the farmers of Central New York. All the improvements in machinery and implements, all the appliances of chemistry, and cleanliness in the dairy, indispensable though they be, will not give the best results in butter and cheese, if the pasture and meadow be foul.

It was my intention to say something of the several pasture grasses, but will pass by saying, that for our climate I know of nothing better than our native June and orchard grasses mixed with bent grass crested dog's-tail and meadow fescue, for, after all, to repeat myself, it is the hardy grasses that we want, and none other. Of the artificial grasses, as those plants are called which are cultivated in England and used like the grasses, there are many kinds—annual, biennial, and perennial, legumes and brassica, some of which are not hardy enough for our climate. Lotus, sainfoin, parsley, sardella, and yarrow cannot be successfully grown here. Rape, mustard, lucerne, and vetches can be grown here as easily as clover. But at the head of all leguminous plants stands the alfalfa or lucerne, which is destined, I believe, to greater success in this country than the red clover, especially in the hot, dry soils of the west and southwest, as it will withstand drouth and heat, look fresh and green when all other forage plants are dry and drooping. Lucerne has been known to Old World agriculture for the last two thousand years, and perhaps longer than that. It is a hardy herbaceous perennial, and will send down its long roots into mellow subsoil to a depth of ten and twelve feet. It is very tenacious, and will take possession of the soil to the exclusion of all the grasses and herbaceous plants. Notwithstanding the large amount of forage it produces, the lucerne does not exhaust, but improves the soil, for the *leguminosæ* draw almost their entire nutrition from the atmosphere, and the lucerne produces ten times more roots than any of the clovers. Vast masses of these roots decay in the soil every season, thereby enriching the land. The plant, too, is so dense that it shades the soil. That lucerne will flourish in this region is proved by the fact that Messrs. Walcott & Campbell have grown it for many seasons, and prefer it to any other forage plant.

I take the liberty, in conclusion, to say that no matter what seed is sown, unless the soil be kept in good heart both pasture and meadow will fail. Johnston shows that for every ton of hay carried off the farm, there goes with it not less than one hundred and forty pounds of silicates, phosphates and potash. Now, if these ingredients are not returned in some shape to the land the crops will fail, moss, sorrel and wire weeds will usurp the ground, and barrenness take the place of fertility."

NEW ZEALAND has 12,000,000 acres fit for agriculture, and 50,000,000 for pasturage.

Agricultural Emplements.

The Doderick Perpetual Hay Press.

Hay pressing or baling is comparatively a new feature in most parts of the country, and even in the most flourishing hay sections we have not far to trace the past to find our markets filled with loose hay, and barges stowed with it in the same condition for transportation. To supply our large cities thus would be hardly practicable, if possible; nor is it difficult now to see the advantage of baling hay preparatory to marketing. For economy in room, cleanliness, neatness, and as precaution against fire, the advantages of baled hay are well known, and consumers also begin to recognize the fact that hay, after baling, loses that dusty, dry and harsh nature, and becomes soft and pliable, more like newly cured hay—hence sweeter and more nutritious, occasioned, no doubt, by the dampness the bales appear to absorb and retain from the atmosphere.

Shipping hay as a business, says Mr. Rennie of the Agricultural Warehouse in this city, in the circular from which our present remarks are condensed, is growing largely, properly conducted, it has proved itself safe, remunerative, and requiring less capital than any other business affording the same margin.

It has been found that a large local retail trade always follows a baling establishment, as loose hay will not sell in competition, even at greatly reduced rates if the bales are honestly put up, and a flourishing business could be established in many of the smaller cities and towns by locating a press in them, and retailing baled hay.

The Doderick press is adapted for baling any loose material, and its operation is continuous so that a whole stack or mow can be baled without stopping. The bales are pressed in sections, the finished bale forming the head to press the succeeding one against, and is ejected by the operation of the machine as fast as the forming bale becomes rutted. Light followers with tying slats in them, are slipped in without stopping when the proper length of bale is formed and through them the bale is tied while passing through the machine. The discharge end of the machine is constructed adjustable, so that by turning a nut the bale is impinged or released, thus forming heavy or light bales as desired, and requires no change after being adjusted to form the weight of bale required.

Care of Implements.

It is not a little surprising, but nevertheless quite true, notwithstanding all that has been said and written on the matter, that the very last thing which farmers as a rule consider it worth their while to put under cover and protection is their implements of husbandry. The hay is cut down, properly tossed and dried, and then carefully housed before night if possible, when rain clouds threaten, that it may be safe from the injurious effects of a wetting; but what about the mower that cut it? The turnips are taken up, stripped of their tops, and also carefully pitted or cellared to guard them against the night's sharp frost, but what about the hoe that stripped them? And thus might we go the entire rounds of the implement department. Frost and snow will very soon kill out the grain, fruit or root crops; but then frost and snow, of course, never hurt a reaping machine, a plough, a cultivator, &c., &c. Oh, dear, no! they have no effect upon them whatever! "Very good," we think we hear the manufacturer say; "just stick to that opinion, and follow it out practically, and *we* will lose nothing by it, depend upon it."

If farmers would go and candidly ask any honest implement-maker in the Dominion what his opinions are about the injurious effects of the climate upon those articles of husbandry which are, in nine cases out of ten, left out of doors, what would he tell them? Simply this: that the effects of weather, alternate rain and sunshine, frost and thaw, upon almost any implement, are actually more injurious and wasting than the ordinary work it is designed to do. In other words, reapers and mowers, and other harvesting machines which are properly housed and sheltered when not in active use, will last more than twice as long as they would under the ordinary usage they receive. This has been repeatedly proved in the case of the western farmers of the United States, who systematically leave their implements exposed, and who, in consequence, as statistics show, pay annually nearly double as much for implements as an equal number of farmers in any other portion of the world.

If implement manufacturers followed this careless course with their shop and general manufacturing machinery, they would ruin their respective establishments in a single year.

The most ordinary excuse we hear offered for insufficient implement protection, is a want of building accommodation. It is no excuse at all. These shelters can be made in a dozen different, simple ways. For lack of a better, place wooden supports one or two feet from the ground, in a dry place, and cover with dry straw. On this place your implements, or as many of them as you can, having first thoroughly cleaned them and oiled the iron parts. If you have not boards sufficient to enclose it, then build your straw stack over the whole, carrying it up so as to shed the rain. This is one method, but we give it only as a sample of what even the most ordinary ingenuity may invent. Above all things see that your implements are properly cleaned and dried, and that the iron portions are coated either with kerosene oil, beeswax, or, better than all, paraffine oil. The cost will be a mere nothing, whilst the results will be—all gain.

A Couple of Useful Hints.

Very often a screw hole gets so worn that the screw will not stay in. Where glue is handy the regular carpenter makes the hole larger and glues in a large plug, making a nest for an entirely new hole. But this is not always the case, and people without tools and in an emergency often have to fix the thing at once. Generally leather is used, but this is so hard that it does not hold well. The best of all things is to cut narrow strips of cork, and fill the hole completely. Then force the screw in. This will make as tight a job as if driven into an entirely new hole.

Another hint of a similar character may be useful. One often desires to put a staple into a block of stone. The hole is made, the staple inserted, and lead melted and run in. But unless the hole is made with the bottom larger than the top, the lead will in time work out, if there is much jar or side strain on the iron. Besides, the lead itself is liable to some compression, which admits of looseness, especially after being subjected to very hot fires. A much better article is sulphur. If this be melted and poured in around the staple instead of lead, it makes a much more durable job. Besides, it is often more easy to procure sulphur than lead, as every store keeps it that deals in general variety.—*American Builder.*

NEW CORN-HUSKERS.—A corn-husker invented by a working-man of Chatsworth, Ill., was recently tried by a farmer there who, upon arriving in the field, thought he would drive down a row that he had previously husked by hand, for the purpose of getting his team used to the machine before going into the corn. Upon reaching the other end of the row, a distance of eighty rods, he found about forty ears of corn of different sizes in the corn-box. As he was a man who considered himself a conscientious husker, he was the least bit surprised at the circumstance. We observe in the *Amboy, Ill., Journal* an account of a trial of another machine known as Mettler's Patent, which gathers the ears and husks and lets them fall on an apron whence they are carried to a waggon. It will harvest a row as fast as a team of horses can walk. The trial was considered a great success.—*Western Rural.*

Horticulture.

EDITOR—D. W. BEADLE, Corresponding Member of the Royal Horticultural Society, England.

THE ORCHARD.

Seasonable Notes.

The fine balmy days usually occurring at the end of October or the beginning of November, known as our Canadian "Indian summer," is the season usually taken advantage of by horticulturists for getting the orchard and garden in ship-shape for the approaching winter; and certainly the protracted lease of pleasant weather we have of late enjoyed, will leave little excuse for such as, in the event of a sudden, severe change of temperature, will have been caught napping. November weather is proverbially catchy and unreliable, and the warm sultry atmosphere of to-day may to-morrow be charged with the death-warrant of our choicest, most tenderly reared vegetable and floral pets. The inference is too plain to be misunderstood; let any odd jobs that have been overlooked, especially those upon the prompt performance of which the safety from sudden frost depends, be attended to without delay, and thus avoid the bitter reflections that too often result from having procrastinated just "one day too long."

Ploughing.—Soil intended for the site of new orchards should be thoroughly broken up and, if time permits, fenced in this fall. There is a twofold advantage in doing this. The ground will be in a much better condition for the reception of the trees than if ploughed in spring, and the time thus gained can be devoted to the other pressing work of the season.

Heeling-in.—Full directions for the winter disposal of trees intended for spring planting appeared in the Correspondence department of our last issue. In exceptional cases, and during mild, warm weather trees may be set out this month, but on the whole it is safer to heel-in until spring. Never on any account plant trees in frozen or partially frozen soil.

Cions and Stocks.—An experienced eye will soon learn to select only such as are sound and thrifty. The former may be cut any time before hard frost sets in and should be stored in such a manner as will ensure protection without danger of their vitality being destroyed by over-drying. Sawdust is perhaps the best material in which to pack both cions and stocks for root-grafting, but it should be examined frequently with a view to correct by damping the tendency to dry out.

Stored Fruit.—Pears of the choicer varieties, if wrapped separately in thin, soft paper—similar to the manner in which we see boxed oranges treated—and layed in single layers in a box or on a shelf, will preserve their quality and appearance for a considerable time. The temperature of the fruit house or cellar should be kept at, as steadily as possible, about 35 to 40 degrees.

Straightening the Trees.

It is a very common thing to see fruit trees that have become bent in the trunk, especially in those orchards which are exposed to the sweep of our prevailing westerly winds. Perhaps some of our readers have some such trees that they are anxious to straighten, so we give the plan adopted by a correspondent of the *Country Gentleman* with entire success; and which is just as applicable to crooked apple, pear or cherry trees as to quince trees.

Some years since the writer came into possession of a country place having upon it a number of old quince bushes, each composed of an old decayed standard and numerous sprouts, springing from a common root. The best sprout in each bush was selected to form a new standard, and the old standard and all the other sprouts were cut away. In one case the best sprout was crooked nearly in elbow form, as shown in fig. 1; and as this form was ver.

Fig 1.

objectionable, it was determined to straighten the trunk. For this purpose three saw kerfs were cut into the convex side of the bend, at the points *a*, *b*, *c*, the trunk being sawn half way through at each kerf. The trunk was then forced back by an attendant, and the saw was passed a second time through each kerf. The process was continued until the trunk could be held erect. Three blocks of 2 by 4 scantling were then applied to it, each block having previously had a groove cut in one of its sides, to fit the curvature of the trunk. One block was applied near the base of the trunk, and on the concave side; a second near the fork of the branches, and on the concave side; while the third, which was about eight inches long, was applied to the convex side at the place where the kerfs had been sawed. This middle block had grooves sawn transversely across it, corresponding with the position of the kerfs. A piece of scantling was then placed against the outer flat side of the central block, and its lower end was lashed to the lower block by a piece of rope. The upper end

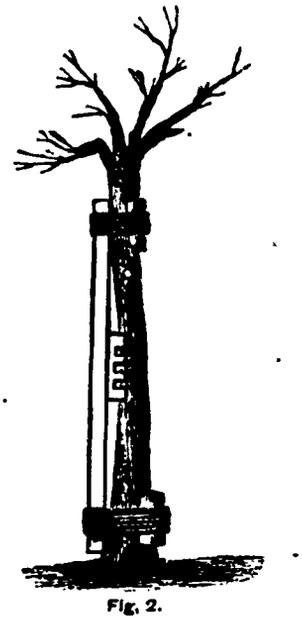


Fig. 2.

of the scantling was lashed in the same manner to the upper block, so that the trunk and blocks appeared as represented in fig. 2. Lastly, some strips of cloth covered with grafting wax were introduced through the transverse grooves of the middle block, and tied upon the trunk so as to cover the kerfs, and keep out the weather.

The result is, that the tree now stands erect, and is as nice a looking tree as one could have. As the bark above and below the kerfs touched, the kerfs have healed up, and in a few years probably all external traces of the operation will have disappeared. The trunk is about six feet in height to the branches, and was two and a half inches in diameter at the place where the kerfs were cut.

Fungus on Fruits.

There are diseases affecting the products of the vegetable kingdom quite as mysterious as those affecting the animal kingdom, and doctors of vegetable physiology differ quite as widely as to the causes of the diseases and their cure, as do those of animal physiology as to the causes and cures of the multitude of diseases which curse man and the lower animals.

Here is an apple which we have been handling in considerable quantities for a few days past, the finest eating apple of the season, unsurpassed in beauty, *when at its best;* medium in size, nearly round, with a deep crimson color on the sunside cheek, and a lighter red on the shady side. With such a brilliant exterior, it has a flesh as white as snow; fine grained, juicy, sub-acid, and of an exquisite flavor. Yet with all these merits, our shippers, to whom we sell the bulk of our crop, will not touch it, and to dispose of it we are obliged to scatter it around among our grocers.

The reader will very naturally inquire, why will not the shippers buy so beautiful and excellent an apple? We will tell you: We have owned the orchard in which this variety (the Fameuse) grows some eight years, and during all that time there has been but one year in which its skin has been free from disease. In 1870, when the largest crop of apples ever produced in this country was grown, the Fameuse was perfectly healthy, and sold to shippers for more than any other apple. But in ordinary seasons its surface is more or less covered with black spots, called by the doctors "fungus," skin deep, some of them traversed by cracks extending rather deeper than the skin, and in quite a proportion of the fruit, not only marring the beauty of the surface, but disfiguring the fruit, by arresting the growth of the side most affected. When apples thus affected are barrelled and begin to sweat, these spots extend rapidly, and the fruit soon decays. The reader will now see see why shippers will not buy such fruit.

Many other valuable apples have been reluctantly dropped from the list of profitable sorts, because of the prevalence of this disease, among which we may note the Newton Pippin and Fall Pippin. The Early Harvest, Spitzenburg, and some others, are in a less degree affected by the disease. The Virgalieu pear, once second to none, has been gradually retired from cultivation on account of its exceptional liability to attacks of the fungus. The Seckel and Flemish Beauty pears have been badly affected this season.

The fungus appears to like a shining mark, and attacks our choicest fruits, but as yet science has failed to discover an infallible remedy, or any remedy at all, or even to decide what is the cause. Some have suggested that the cause is in the soil; but if so, why are not other varieties growing on the same soil attacked? Growing in the midst of our Fameuse, we have Baldwins entirely free from spot, and growing on the same trees, grafted in, we have Early Harvest, Sweet Bough, Red Astrachan, and Twenty Ounce, exceptionally fair.

If the cause is looked for in the tree or in the atmosphere, we may ask why other varieties, grafted in the trees upon which the Fameuse have been so badly affected, and growing in the same atmosphere, are fair? After doctors have so long disagreed we will not have the presumption to attempt a solution of the mystery, but will merely offer one or two thoughts:

1. It has been pretty clearly demonstrated by microscopical examinations, that the atmosphere is constantly filled with the minute spores of fungii, seeking suitable seed-beds on which to fasten and grow, so that we find fungii growing everywhere, on decaying vegetation, and not unfrequently on living organisms.

2. Some species and varieties of fruits, for reasons not yet clearly understood, seem to offer more favorable conditions for the lodgment and growth of these spores, than others, and consequently we see, in the same orchard, in the same garden, on the same tree, varieties that are fair and healthy, and others that are rendered almost worthless by the presence of fungus.—*Rural Home.*

Remarkable Productiveness of the Baldwin.—Mr. Wm. Case, of Irondequoit, in this county, brought into our office a branch of a Baldwin tree, having two small forking branches, eighteen to twenty inches long, bearing twenty-two extra sized apples. They were stowed in so thickly as to appear like a solid mass of fruit. While the apples were very large, and free from ordinary defects, the surface of many of them was covered with specks of the dry, red, bitter rot. We have known Baldwins affected in the same way before, but the disease was only of temporary duration.—*Rural Home.*

THE FRUIT GARDEN.

The New Early Grape, "Lady."

Mr. G. W. Campbell, Delaware, O., sent us about the last of August, says the *Rural New Yorker*, a single cluster of a seedling white grape, which we recognized as the grape shown last year as "White Lady." Mr. Campbell says it is a seedling of the Concord and, so far as he knows—and he ought to know—the earliest ripening grape yet introduced being a week or ten days earlier than Hartford Prolific, and "a very good grape." Mr. Campbell claims it to be two weeks earlier than the Martha, and says the vine is as vigorous and hardy as its parent. We quote from Mr. Campbell's letter:

"It is a pure Concord seedling, and seems to retain all the best characteristics of the parent in the way of health, hardiness and productiveness, with improved quality in the fruit and at least two weeks earlier ripening. It was first brought to notice by Mr. Imlay, of Muskingum Co., some five years ago at a meeting of the Ohio Horticultural Society. The original vine fruited for five or six years, but was destroyed a year ago by removal. I think there are no vines now in existence that have borne more than two or three years. I have grown it for five years and fruited it for three. The fruit is very attractive, a light greenish yellow, covered with pure white bloom; skin thin; seeds few and very small; clusters medium large; berries large, round, flavor sweet, rich, with a trace of native aroma and just enough of sprightly, vinous acid, to prevent cloying the appetite; in character, suggestive of Concord but much more refined and delicate; it has a little consistence of pulp, but is of uniform character in flavor throughout, with no sour or unpleasant taste at the centre; the berries hang perfectly to the cluster, never falling, even when over-ripe, like Hartford and some others. So far, neither mildew of the foliage nor rot or mildew of the fruits has occurred, and having endured uninjured the unprecedented cold of the winter of 1872-3 in full open exposure when the thermometer fell to 32 below zero, it may be fairly classed among the 'iron-clad' varieties suited to general cultivation; ripening before Hartford Prolific or any other of the early varieties now grown."

Is Pear Culture Profitable?

The *Batavian* relates an experiment that furnishes an affirmative answer to the above question. It says:

Ten years ago, on a farm of Mr. John Taylor, of Elba, a pear orchard covering three acres was set. The pears were of the Duchess D'Angoulême variety, and the cost of the trees was $500. We estimate the cost of preparing the ground and setting the trees at $200, making the first cost $700. For the first six years there was no fruit. The seventh year 20 barrels of very fine fruit—three of the barrels being filled with 150 pears each. This crop sold at $10 per barrel—$200. The eighth year 150 barrels of fruit were gathered, which sold at $6 per barrel—$1,080. The ninth year the yield was 220 barrels, which brought $5 per barrel—$1,100. This year, the tenth since planting, the yield was 204 barrels, which sold at $5.50 per barrel—$1,222. During all these years potatoes have been grown between the rows of trees, and have paid more than the cost of their cultivation and the expense of the necessary care and culture to the trees. Now let us calculate:

Cost of trees and setting	$700
Interest for 10 years	400
Total	$1,100
Income 7th year	$ 200
" 8th "	1,080
" 9th "	1,100
" 10th "	1,222
Total	$3,502

Three thousand five hundred and two dollars income less eleven hundred, cost, equals $2,402 profit, which is $240 20 per year for three acres—$80 06 per year per acre. If this was *all* it would be most profitable culture, but the orchard has just begun to bear, and the ratio of profit will probably be much greater for several years to come.

Frogmore Late Bigarreau Cherry.—This, of which a colored plate is given in last month's *Florist*, is said to be a very useful late variety, which hangs long on the tree without cracking, a fault belonging to the old Bigarreau. The fruit of this late kind is large, bluntly heart-shaped, with a slight suture. The skin is pale waxy-yellow, covered with bright red on the sunny side; the flesh is tender and juicy, and in every way excellent.

The grape yield in New England this year is the heaviest ever known.

Utilizing Grape-Stones.—It is usual to throw away grape-stones as a waste product, but it appears they can be turned to good account. When roasted and ground they possess an aroma very much like that of East India coffee, and the beverage obtained therefrom is about the same as coffee in taste, though inferior in quality. An acre of vineyard normally yields 30 to 40 pounds of this seed.

Early Normandy Plum.—A plum bearing this name has been originated in France. The early season at which it ripens may render it worth cultivating in this country. It is thus described:—Tree, a very vigorous grower, with long branches somewhat divergent. Fruit, as large as that of a greengage, round on one side by a very slight suture. Skin, fine, transparent, separating readily from the fruit when ripe, of a dull purple color on the sunny side, on the light flesh colored on the shady side; covered with a light bluish bloom. Flesh, fine and melting, of a greenish color, somewhat firm, filled with a very abundant sugary refreshing juice. It ripens from the middle to the end of July, and this, together with its showy appearance and good quality, renders it valuable.

Pear Culture in Japan.—"Occasionally," says Mr. T. Hogg, who knows Japan well, "as you pass along, you see orchards of trained pear trees, of the kinds peculiar to the country. The trees are planted, as nearly as I could judge, from 12 to 15 feet apart. After attaining the proper height, the tree is allowed to form branches, and these are trained to rough framework of the same height, perfectly level, and extending over the whole area of the orchard. What object the cultivator has in training them in so careful a manner I have not as yet ascertained, but why may it not have its advantage in enabling him to secure its crops in the highest possible condition? Every fruit is thus brought into view, and within reach of the gatherer, who, where trees are left to grow in their natural form, too often runs the risk, in order to secure some tempting prize displaying its beauties on some inaccessible branch, of injuring the tree, or worse, possibly himself."

Bone as a Manure.—The bones of all animal creation are composed of three substances—phosphoric acid, lime and gelatine or glue, three of the best fertilizing substances to produce good seed. But where do the bones of animals come from? Certainly from the soil, through the grass, hay, grain, etc., consumed as food. Therefore, every horse, bullock, cow, sheep and hog sent off the farm without returning a like quantity of bone to the earth, causes our land to yield less and less every year, till the land becomes what is termed worn out. Besides, every load of hay and every bushel of grain sold off the farm carries away the same material, as it is the hay and grain that makes the bones of our cattle, horses, etc. Five per cent. of all plants are composed of ten mineral substances, of which bone forms a large part, and which comes directly from the earth, while the fat of the animals is composed of carbon, oxygen and hydrogen, three of the gases that plants take exclusively from the air, in the forms of carbonic acid and water, and which constitute about ninety-four per cent. of all plants.—*Louisville Courier Journal.*

Chestnuts.—This abundant fruit may claim a place, not equal to that of the haricot certainly, but still an important place, amongst the substitutes for potatoes. The roasted chestnut is well known in England, but in France and many other countries it is an important article of consumption. The sale of roasted chestnuts in Paris is enormous. But the chestnut, indeed, enters regularly into French cookery; it is used to make stuffing for turkey, and from it is made a *purée*, named after the great Condé, who was a famous *gourmet* as well as a general, which is eaten with many dishes in place of mashed potatoes, and is much liked by those who relish a certain amount of sweetness in such preparations. Boiled chestnuts are also eaten largely in some districts, connoisseurs adding a little butter to them when cut open, but utterly repudiating salt with them, in which we think they are decidedly wrong. In Corsica they form a large part of the food of the country, and in the south of France, and in Spain, they are largely consumed. The chestnut certainly ranks among the most wholesome and nutritious of fruits, and deserves more consideration than it receives in English houses.

Soot as a Garden Fertilizer.—Perhaps it may never have occurred to some of our lady readers that the refuse soot of their chimneys is one of the most valuable stimulants and fertilizers they can have for their garden flowers. The following incident of practical experience is from a lady contributor to the *Rural Carolinian:* During two seasons we nursed, fed, and petted a Hartford prolific grape-vine—as much for its shade over a window as for its fruit—but it persisted in remaining a stunted cane, yellow, and refusing to climb. At the window, on the other side of the door, we had a stunted rose-bush, also yellow and refusing to climb. Despairing of shade, grapes and roses, we finally bethought ourselves of soot as a manure, and forthwith made a "soot tea" by steeping a tea-cup of soot in a quart of water. This we administered, two doses each, to both the tree and the vine. The vine grew six feet in height in the space of six weeks, the rose-bush four feet in the same length of time—both thereafter rejoicing in raiment of living green.—*Horticulturist.*

Packing Strawberries for Transportation.—Thus, according to an English paper, is the way they pack strawberries for transportation over there:—Strawberries are the most difficult of all kinds of fruit to pack safely. Wrapping each fruit in a leaf is a good plan, but deft fingers only can perform the operation without bruising the berries. We like to pull them off the plants by the foot stalk, and lay them in the box in the same way, simply placing a flaccid strawberry leaf between the berries. The boxes should be two inches deep, and before packing, a thin layer of cotton-wadding should be laid on the bottom, and on this soft vine-leaves; above the fruit, nothing binds so well as the soft strawberry leaves as before mentioned; and above, layers of cotton or leaves to keep all in their places. It is very important that the strawberry leaves for packing should be gathered some hours before they are wanted, and allowed to dry and flag in the fruit room, as leaves freshly gathered are altogether unsuitable.

Uses of the Dead Leaves.—The leaves of deciduous trees and shrubs, grape-vines, etc., are now falling, and will soon be scattered by the high winds of the fall, if not collected and stowed away for future use. They are too valuable for many purposes to be allowed to go to waste. They form a good protection for strawberries during the winter, as a covering of them prevents that alternate freezing and thawing which is so injurious to the plants. A covering two inches in depth will be necessary, and this should be kept from blowing away by the pressure of twiggy branches spread over it. Decayed leaves produce that valuable manure known as leaf-mould, which is so highly prized by the florist. In the construction of hot-beds, dead leaves are very useful, as layers of them, between layers of manure, moderate the heat and retain it for a long time. For littering stock and absorbing liquid manure, dead leaves are of great value. Large quantities should now be collected and kept in sheds for future use.

Old Seeds.—On a recent occasion, Mr. Niven, curator of the Botanic Gardens, Hull, lectured on "Seeds." He said they must look upon seeds as being nothing more than a matured ovum. The object of each seed was, of course, the perpetuation of the kind to which it belonged. There was a great deal of analogy between a seed and an egg. The outer coverings of seeds were not unfrequently beautiful when placed under the microscope. After giving a technical description of the outer coverings of seeds the lecturer proceeded to speak of their preservation. The egg, as all would know, had the power of vitality for a long time, and seeds would grow after being kept for a long period. He dare say most of them had heard of seeds that had been found with mummies having been sown and afterwards springing up, but such cases were not well authenticated. Farmers said that the wheat known as mummy wheat was the same as that which was cultivated in Egypt thousands of years ago, but he thought it was only a popular fancy. He could scarcely say how long seeds would keep, but for their proper preservation they must be kept in Nature's own granary. In making railway embankments the soil that was turned out from 20 or 30 feet below the surface was often known in the following year to produce flowers, &c., that were at the present time unknown to the locality. The seeds had been deposited in the ground, and therefore kept in Nature's granary—kept away from the extremes of dryness and moisture, and from the action of light, and had consequently retained their vitality for an unknown period. To retain vitality four things were required, namely, moisture, heat, air, and electricity. One reason why seeds were placed in the ground was to preserve them from the action of light. The amount of heat required to support seed varied very much. Some plants known to them would vegetate with a heat slightly above freezing point, while other plants, such as the palm, required a temperature of from 80° to 100°. At the freezing point vitality would not cease to exist in such, but it would become very low.

THE VEGETABLE GARDEN.

Cleaning Up the Garden.

We clip the following timely article from the *Germantown Telegraph*, one of our most valued exchanges :—

At this season of the year people will be anxious about preserving various pet things that have been growing in the garden for the season, and which will suffer from serious frost. These will need to be lifted and put into pots or boxes to keep in windows or cellars during the winter season. They must be taken up with as much earth as possible, and after potting receive a thorough watering to settle the earth well about the roots. The object now is to keep them from withering as much as possible, and this is best done by keeping them in a shed or some place where they will be safe from wind for a few days. If once in a while they are sprinkled with water overhead, it will be all the better. But often the earth falls away so badly in digging up, or in some way the roots are so out of proportion to the leaves and branches, that the withering of the foliage goes on. In this case the rule is to pick off some of the most mature leaves, and this seems to relieve the rest. Gradually the plants are brought to the light of day, so that in a week or two they go on all right.

But even after all has been taken up that is desirable, there is much left in the ground for which we have no use—lady-slippers, petunias, mignonette, marigolds, and many others which we leave out to continue blooming as long as frost will let them. Too often these are then left where they bloomed till the next spring, dry, shabby, and in every way unsightly, when at the annual spring planting time they are cleared away. True, once in a while some person with the gift of neatness and order clears all away, and puts things to rights for winter, but these are the rare folks, whom it is one of the great events of life to see.

Not only is it due to neatness to have all refuse promptly cleared up, but it is due to the manure heap, without which it is almost impossible to have good flowers any more than one can have good corn without fertilizing the ground. In every garden there ought to be a quiet corner shut off from the rest of the grounds by an arbor-vitæ hedge, into which weeds, leaves, grass, and other waste matter ought to go. This at this season can be materially added to by the falling leaves; and if these frost-killed leavings, including dahlia tops and refuse of every kind, be added, there need never be any anxiety as to what to get to make the flowers grow. And then, best of all, the place gets a nice cleaning-up for the rest of the year.

A Very Powerful Squash.

The *Hartford Daily Times* says: The lifting power of plants is something marvellous, when one considers the chemic laws and subtle principles of plant growth. The power of growing trees to displace huge rocks is often illustrated, and seldom more strikingly than in the case of on oak tree in South Hadley, Mass. This tree, says a local account, is opposite the residence of Nelson W. Burnett. "A rock had a seam in it, and a fibrous root from the oak crept into the seam, grew, and lifted the rock, weighing over a ton, to the height of one foot." The thickest and heaviest of our Hartford flagging-stones, as shown in the case of several on Main Street, has been lifted out of position by the growth of tree-roots; and on the corner of Main and Pleasant Streets one of these roots has thrown up the solid half-foot thick flags of freestone there imbedded. Here is an account of the action of forces in vegetable growths in the case of a squash—the locality being Amherst, Mass.:

"The squash in the Durfee plant-house is now lifting 4,000 pounds. It is now ten weeks since it was harnessed, and something has been continually breaking loose. Five levers have been used, each larger than the preceding, and a set of larger irons, overlapping the first, was found necessary. The leverage is a curiosity, the seven weights comprising buckets of sand, boxes of paint, an anvil, a chain, a pipe-stake, and innumerable other miscellanies. The vine is between 50 and 60 feet long, and thus dynamic squash is the only fruit it is allowed to bear. Lovell has taken photographs and stereoscopic views."

Early Spring Vegetables.

We suppose that not even the most practical epicures enjoy their dainty dishes more than the average human being does his early vegetables; and considering how comparatively easy it is to have some of these, the wonder is that more is not done to get them. The reason, perhaps, is that few think of it till the spring time comes, when it is too late to do much in the way of getting them. *This is the time to begin to think about these things.* Many vegetables start into growth with very little heat, and even the protection of a fence will often bring things forward some days before those which have cold and bleak winds to contend with. We know a garden in Montgomery county, near this city, which has but a low wall of about four feet high around it; but even this is a wonderful screen from cold winds. Up under the north wall of the little garden, in the full southern sun, is the rhubarb and the asparagus, and this little advantage alone gives them nearly two weeks start of their neighbors with these two vegetables. It is not always convenient, or even desirable, to have a wall like this, but almost any one can have a thick arbor vitæ hedge, which will answer nearly as well.

Besides this, much can be done by hot-bed frames, as they are generally called, although when no manure is used to make an artificial warmth, they are by gardeners called cold frames. These placed over crops, bring them forward considerably. Beds of asparagus can be made with an especial view to having them covered with sash in this manner, and when the spring comes both radishes and lettuce can be sown on the earth under the glass, and will grow on and do well without much interference from the asparagus growing up between them.

So with strawberries. A few sashes set over the plants in a warm and dry situation, brings them on wonderfully. Of course when one begins these practices some judgment will be required in the management. As a general rule the sashes should be left off in hot days, putting them on only at nights to keep off the white frosts and keep the ground warm. This warmth is also aided by putting the sash on early in the evening, so as to enclose a body of warm air before the sun entirely goes down. If the sash is kept on all the time, the plants become weak for want of air during the growing day-time, and are then more liable to injury by night.

It is on these little matters that some judgment is required, but it soon comes as natural to one with a little experience as swimming does to a young duck. Just as in the case of a duck, too, it is a sort of judgment which no newspaper nor anything but natural tact can teach. Let all who have gardens look around just now and see what can be done. They will find more chances for these little family enjoyments than many of them ever dreamed of, and no doubt will thank us for the suggestion when they find how well their thoughtfulness now is rewarded by the fulness of early spring garden things.—*Germantown Telegraph.*

Preserving Tomatoes.

The following is the method by which the excellent tins of preserved tomatoes now found so good in winter, are prepared. They are first slightly scalded, sufficiently to peel nicely, and when peeled, are thrown into pans in order to let some of the watery part drain off. They are then packed into 2½ pound cans, leaving just room enough for a large spoonful of syrup. This syrup is made by dissolving 2½ lbs. of salt, and the same amount of sugar, in one gallon of water. The cans are then sealed and placed on sheet-iron pans, holding thirty-five cans each, and lowered into a vat containing boiling water of sufficient depth to cover them. If a can is not tight, it may be readily discovered by the air which will escape through the hole, causing bubbles to rise to the surface of the water. The leaky can should be immediately taken out and the hole stopped. All kinds of vegetables and fruits put up in cans, should be first tested in this way before they are sealed. When a vat full of tomatoes has thus been tested and prepared, the pans are lowered into the vat one top of the other, and the steam let on, allowing the tomatoes to boil thirty minutes. In case cans larger in diameter are used, longer cooking will be necessary. When the tomatoes are done, the pans and their contents are hoisted out, and the cans, after they have cooled a little, are vented by opening the prick-hole in the cap with the soldering iron, allowing the steam to escape, and then immediately closing the aperture. When the cans have cooled, if all right, the heads will snap in by a slight pressure, showing that there is a good vacuum.

Wintering Cabbage.—To keep cabbage through the winter, pack in sawdust in the barn and allow the whole to freeze, the sawdust being such a non-conductor of heat that once it becomes frozen through, it will not thaw out until well into April, and cabbage will come out almost as nice as when put in.

Cabbage Worms.—W. M. B., of Tuscola, Ill., gives the following successful remedy for cabbage worms: Take the leaves of the alder berry bush, make a strong tea from the same, let cool, then sprinkle the heads of the cabbages thoroughly with the tea. The above remedy has been used for a number of years, without a failure.

Evergreen Hedges.—A correspondent of the *Boston Cultivator* describes the hedges of J. W. Manning, of Reading, Mass., consisting of Norway spruce, arbor vitæ, white pine, and hemlock; but for beauty the hemlock stands unrivalled. This correspondent has found that a slight cutting in of the branches once a year keeps them in handsome shape. He removes the trees from the borders of pastures where they grow, when about a foot high, with a good ball of earth. Our own experience is, in transplanting young hemlocks from natural localities, that if a good ball of earth is taken with the roots they invariably live; if the roots are denuded they invariably die. We have found the same result with white pine. The hemlock (as well as the Norway spruce) will grow better in shade than most trees, and hence the reason that the interior of the hedge is dense with foliage, giving the screens a fine rich, compact appearance.

Mushrooms.—There is no reason why any one who has the use of a dark cellar should not raise mushrooms on a small scale. Even city cellars will answer if the temperature is in the neighborhood of 50 degrees. The other condition is the procuring of well-fermented manure, thoroughly turned and beaten down. Flour barrels sawn in two make good tubs. Four or five holes for drainage should be bored in the bottoms. Three inches of good garden soil covered with the prepared manure until the tub is half full gives a surface suitable for the spawn, half-a-dozen pieces of which, each the size of a hen's egg, are plated thereon. Then fill the tub with manure, rounding it off at the top in the shape of a dome. The temperature of the bed at the time of the insertion of the spawn should be about 70 degrees. When the spawn takes it will develop fine thread-like filaments. This should take place at the end of ten days. It should then be covered with an inch of fresh, fine-sifted soil, and in a few days the mushrooms will show themselves. They should be gathered every other day, breaking them off in the soil, not cutting them. One planting will last three or four weeks, and a second crop can be obtained by giving another dressing of fresh soil, half an inch thick, beating it down well with a spade, and watering it with water about 100 degrees temperature.

Mushroom Eccentricities.—The keen instinct of this discriminating fungus in finding suitable subsistence leads to strange things sometimes. I knew of two rival amateur gardeners who were located next door to each other. They took particular pains to display to each other the best products of their gardens, and to keep out of sight the worst. When Wilson had enjoyed a peculiar run of good luck and had driven Jones mad with envy, the latter saw advertised. "Milltrack mushroom spawn, warranted to produce," &c., &c. A glorious inspiration of revenge came over him, and he sent an order for about ten times as much spawn as he could possibly use. He selected a snug spot at the foot of a fence in the lower part of the garden, and there he made a mushroom bed according to his lights, and made it badly. Now it so happened that Wilson had on his side of the same fence melon and cucumber frames, and a mound covered with marrows, and in providing for these things he had carted in plenty of good manure, of which there remained a heap untouched in the same locality. So Jones, having crammed into his bed an extravagant quantity of spawn, waited, and in vain, for mushrooms, and never got one. But the spawn travelled, found the feast Wilson had unconsciously provided for it, and the cucumber and melon frames soon abounded with mushrooms. As the supply in these began to wane the marrow mound became productive, and when that crop was out the heap of manure became gorgeously decorated with gigantic mushrooms. Every morning Wilson walked up the garden proudly displaying a basket full of mushrooms, while Jones, who saw and admired them in spite of himself, began to speculate on blowing his brains out or giving up gardening. It was settled in this way: Jones married Wilson's aunt, and Wilson married Jones' grandmother, and thenceforward the mushrooms were divided between them.—Alpha-Betagamma *in The Gardener's Magazine.*

THE FLOWER GARDEN.

Preparing Plants for Winter.

Those who have flowers in the open ground, says the *American Agriculturist*, which they wish to keep in the house during the winter, are very apt to delay taking them up until the first frosty nights show that they are in danger. For ourselves, we do not think it pays to take up geranium and such soft wooded things that are apt to grow out of shape during the summer, but we make cuttings and start with nice, vigorous young plants, but those who have not made this provision will take up old plants. The first part of October is quite late enough to pot the plants that are intended for window culture. Any good garden soil will do for potting, and if it is likely to be too stiff and bake after watering, mix some sand with it; it is better to use liquid manure after the plant is well established, than to add manure to the soil. Use clean pots, and these without cracks; put crocks for drainage in the bottom, and then the pot plant, removing any straggling roots, and carefully press the soil firm around the plant. At the same time trim the plant into shape; do not be afraid to use the knife freely; the chances are that too much will be left rather than too much cut away. Shade for a few days, water as needed, and when the foliage shows that it has recovered from the shock of removal, more sun can be given. It is important to inure the plants to confinement gradually; set them on a verandah, or where they will be well exposed to the air and light, and yet be protected from frosts at night; if an unusually cold night occurs, take them in-doors. When finally taken in, place them in a room where the windows can be opened every pleasant day, and do not bring them where there is a fire-heat until the temperature makes it necessary. More house-plants are injured by too high a temperature, and too dry an atmosphere, than by cold. Preparations should be made for preserving half-hardy plants in a pit or cellar. If plants are to remain dormant until spring, several may be put into one box, with plenty of earth around the roots. See that the earth is not wet; plants when dormant are more likely to suffer from too much moisture than too little. They should be looked to now and then during the winter, and be watered if they absolutely need it. Geraniums cut back winter well in the cellar, but if too much foliage and too many succulent stems are left on they will decay. Those who have never tried it will be surprised to find what a valuable adjunct a good dry cellar is to the garden in preserving tender plants.

Box Edgings.

Nothing in my opinion beats a good box edging, either for the kitchen garden or for the most elaborate geometrical designs; but there is such a vast difference in the appearance of box edgings at different places, that possibly a few remarks in reference thereto may not be unacceptable. In the first place, they must be clipped every year, and it is on this operation, and more especially on the time of year on which it is performed, that the appearance of the edging for the rest of the year depends. After repeated trials of clipping at different seasons, I am confident that the end of May or the first week in June is the best time for performing this operation, and for the following reasons, viz., that, although the box is such a hardy plant, its young growths often suffer from spring frosts during May, and, by clipping at the time named, all irregularities of surface are removed; the young growth commences again immediately, and takes off that "strait-laced" appearance that always follows the use of the garden-shears. The young growth gives the edging a pretty appearance, and becomes thoroughly matured to stand any weather during the ensuing winter, which is not the case when clipping is deferred until the end of summer. The operation, although simple in itself, requires some considerable experience before it can be performed properly. For straight edgings, of whatever length they may be, we invariably stretch a line the whole distance to indicate the centre; then we take the desired width off either side, and level off the top with long clean cuts made by sharp shears. I have seen edgings laid in in almost every month in the year, and, with attention to watering, they have almost invariably succeeded; but I never saw them present an inviting appearance when the above date for cutting was very widely departed from. The greatest amount of injury is generally done through salting the walks to destroy weeds, when a heavy fall of rain floats the salt to the edging, thus most effectually destroying it. The next worst enemy to box edgings is the foliage of garden crops or flowers overhanging them, and drawing them up weakly and blanched, so that they cannot withstand severe weather. Wheeling or treading on them also destroys them. Where proper attention, however, is paid to box, the effect produced by it soon banishes from gardens all its so-called rivals.—JAMES GROOM *in The Garden*.

House Plant Compost.

The *Massachusetts Ploughman* says:—Compost for house plants should be made of the following ingredients:

1. Good garden mould.
2. Mould from decayed turf, from a pasture or field.
3. Decomposed stable or cow-yard manure.
4. Mould from decayed leaves.
5. Sea or river sand, free from salt.
6. Peat from the meadows, that has been exposed to frost.
7. Coarse sand or gravel.
8. Broken flower pots, charcoal, or oyster shells.
9. Old mortar or plastering.

Garden mould will not be needed if there is a supply of fine decayed turf mould. About one-fifth of the pot may be filled with the drainage materials, viz.: broken bits of pots, charcoal, or oyster shells. If a little meadow moss is placed over these, it will prevent the earth washing through.

Compost for camelias, roses, geraniums, &c., should be:

1 part river sand.
1 part leaf mould.
1 part manure.
2 parts leaf and turf, or garden mould.

FOR CACTUSES.

2 parts coarse sand.
3 parts leaf and turf mould.
1 part peat and a little broken plaster.

Screens for the Fire-place.

During the summer season, when there are no fires in the drawing-room, tastefully decorated screens fitted into the fire-place have a charming effect. These often consist of looking glass and specimens of dried ferns; but as they do not come within my range, being dried, I shall pass them over, merely remarking that though handsome, they are expensive. The best plants with which to cover screens are the common or variegated ivies. First, a box should be procured, the width of the fire-place, to stand inside the fender; it should be made either of zinc or wood, and should be ornamented with colored tiles—in fact, a box such as one sees on hundreds of window ledges; at each end, in the back corners, an upright iron rod should be fixed sufficiently high to meet the ornamental marble over the grate; between these rods a piece of fine wire netting should be strained, so as to form a screen on which to train the ivy; this wire back should completely cover the iron or steel grate; over the holes in the bottom of the box some broken crocks should be placed, and over the crocks should be put a layer of cocoa-nut fibre; then the box should be filled in with a mixture of rotten turf and some sharp gritty sand. Some nice plants of ivy should next be procured and planted firmly in the box, and rather thickly, so as at once to cover the screen. Along the front of the box, set on the soil, may be pot plants, or the surface of the soil might be covered with *Selaginella aenticulata*, intermixed with cut blooms of large sized flowers.—*Garden (Eng.)*.

Window Gardening.

"Croppie," who is an experienced horticulturist, writes in the *New York Tribune* as follows: I have bulbs in bloom all winter long. Not the same plants, of course, but by keeping up a succession, and replacing those whose duty has ended, I have a continuous exhibition that ends only with the advent of snowdrops in early spring. I adopt as a rule in life never to purchase the cheap auction bulbs; they may be good; or they may not, with odds very greatly in favor of the latter. For hyacinths, tulips, and narcissus, I choose six-inch pots; place some broken pieces of charcoal or pebbles in the bottom for drainage, cover these with a little moss, and fill in with rich rotted compost and sand. I do not like to cover the bulb too deeply; in fact, the neck should just show itself at the surface of the soil. Sink the pots in the ground until freezing weather sets in, then remove them to the cellar, where it will be sufficiently cool to prevent them from starting prematurely. A few of these at a time may be placed in a warm, sunny window, and as soon as the flower buds commence to expand place them on a rustic stand in the bay window of your sitting-room. To keep up the succession, when one is removed from the forcing window replace it from the stock of dormant plants in the cellar. This is a leaf from the book of my own experience, and friends wonder why my stand is always covered with bloom.

REMOVE THE FLOWERS.—The *Garden* says: "All lovers of flowers must remember that one blossom allowed to mature or 'go to seed' injures the plant more than a dozen buds. Cut your flowers, then, all of them, before they begin to fade. Adorn your room with them, put them on your tables, send bouquets to your friends who have no flowers, or exchange favors with those who have. On bushes not a seed should be allowed to mature."

THE FINE COLLECTION of Orchids, formed at Farnham Castle by the late Bishop Sumner, was sold this week at Stevens'. For one of the most remarkable plants which it contained, viz., Dendrochilum filiforme, £25 4s. was obtained, and a fine plant of D. glumaceum realised £14 2s. 6d. A plant of Angræcum eburneum superbum, which last year bore sixty-four blooms on five spikes, fetched £24 2s. Others brought from £3 to £10 per lot.

PROMOTION OF GERMINATION BY CAMPHOR-WATER. A series of experiments, undertaken by Professor Vogel, of Munich, to substantiate the fact that camphor-water promotes the growth and prevents the wilting of tulips, &c., led to the discovery that old seeds, which have almost lost their power of germination, not only recover it when treated with camphor-water, but even germinate in larger numbers and more rapidly than fresh seeds under ordinary conditions. Thus beans, that required eight or ten days for germination under ordinary conditions, develop in camphor-water after three days; and cucumber seed that would not germinate at all in good soil, germinated soon, and without a single failure, in camphor-water; and what is more remarkable still, the seeds so germinated manifest a continued effect of the camphor, when transferred to good garden soil, in the vigor of growth and freshness of the plants. This fact, it is suggested, might be of service, especially in cases of expensive seeds, that germinate with difficulty.

FLORAL DESIGNS.—Where tulips, hyacinths or crocus are planted in quantities it is a good plan to have some regard for color in their arrangement. A small round bed of crocus, for instance, might have the purple variety in the centre, the yellow round that; next place the striped kind, and finally the white; or this order may be reversed with equally good effect. The same arrangement might be observed in border planting, by having the colors in separate rows. A very pleasing effect is produced by staking out four rows. Commence the first row by planting about two feet of white crocus, followed with two feet of purple, then two feet more of yellow, and finally two feet of the striped variety; now plant the second row, beginning with purple, then yellow, striped, and white: the third commencing with yellow, and the fourth with striped crocus. Such a bed is very handsome, indeed. Of course, other devices may be followed, such as stars, crowns, and the like, not only with crocus, but also with tulips and hyacinths.

THE WATER-POT IN 1874.—I told your readers how liberally I used the water-pot in 1868, and how I was rewarded for my trouble by seeing peas and other crops die away under liberal irrigation, and that from that time I intended to use water to a much less extent, should another dry season put me to the test. Now that the present season has done so, I may tell you that I continued in the same mind, and, barring a very few exceptions, none of my kitchen-garden crops have had any water, and, although I could not boast of having green peas in August fit for table, I can say they were alive and promising, although they had no water. Many other crops have done better without the aid of water than they did in the year 1868 with an abundance. So much then for testing the soil we have to deal with. In the flower garden the case is different, the soil being lighter and of greater depth. Here I watered thoroughly every fifth day, giving a good soaking, so that the soil was made moist down to the very deepest roots. These liberal soakings, accompanied with frequent stirrings of the surface to break up the crust, resulted in well-filled flower beds that visitors assured me would compare favorably with the best in the country.—J. E. CLARKE, *in The Gardener's Magazine*.

Poultry Yard.

Poultry Notes, No. 21.

Moulting—Change of Color

There is perhaps nothing more curious in the physiology of fowls than the laws which influence the colors of their feathers. It is asserted that it is by no means a rare occurrence among game fowls—blacks, blues and reds—to change their plumage and become spangles and whites. In the *American Turf Register and Sporting Magazine*, it is stated that in 1307 a case occurred of a milk white cock, after moulting season, changing to a red spangle. A southern gentleman had a game cock bred in Virginia in 1821 which moulted in 1823 a milk white, and in 1824, moulted again to a sky blue. M Reumer tells us of one of his hens, with feathers of a ruddy color mixed with brown, which one year moulted almost black, with some large white spots; next season's moult produced black as the prominent color all over the body; and the succeeding year's moult, white was the predominant color, only a few black patches appearing; another season's moult, and all the black spots disappeared, and the hen became uniformly white, like that of a swan, the hen at this time not being less than ten years old. The same authority gives another instance of a cock which for five successive moults changed color each time. The first year's moult produced ruddy brown mixed with white; second year's moult, he was all over ruddy brown, or rather red without any white; the third year's moult produced a uniform black; the fourth a uniform white. The fifth moult he had white feathers mixed with a good deal of brown and ruddy color, bordering upon chestnut; subsequent moults produced a pure white, then a fair red, and afterwards a mixture of white and light brown. Mr. Hewitt, of Birmingham, England, a very excellent living authority, narrates that a black Spanish cock, put on a farm of 300 acres with hens for breeding purposes, as perfect as the most fastidious fancier could desire, at the end of his second year moulted his tail quite white, the remainder of the plumage still continuing black. In the September following he moulted a pure white, not even a black feather to be found on his whole body, and his legs, feet and bill turned white to match—he was, in fact, a perfect albino; the iris of his eyes also became considerably lighter, but the face still remained of the same purely white character. The curious part of the story is however, that during the whole time he was either partially or wholly a white, he threw perfectly black chickens, and he himself again moulted to his original black color. A lady who frequently exhibited some of the best Spanish fowls of that day, had an adult male that was of extraordinary excellence, and one to which many judges had given first prizes at exhibitions; at the third or fourth moult it became a perfectly "brassy winged" bird, as much so as the well-known breed of game cock called by that name. Like Mr. Hewitt's, it still bred purely black chickens, but itself continued to moult the objectionable feather, and of course was never after exhibited. A Mr. Bromley, whose grey dorkings were notorious for their exhibition successes, affords another example. One of his original stock hens was at the outset an extremely dark grey, and what is termed "robin-breasted." Little by little she became nearly white; her chickens, however, were invariably true to her original feather, yet she still remained one of the most unexceptionable dorkings, for general character, size and conformation, to be met with. A pencilled Hamburgh pullet, bred from a strain whose purity was indisputable, the property of a Hamburgh fancier who competed successively at several exhibitions, finished her career in a way equally untrustworthy. Shown singly (as the "best hen"), she scored several premiums, and was esteemed the best and most desirable specimen of her breed for breeding purposes that could be selected; she at first changed simply her color, and became an equally good silver pencilled bird; but in a very short period afterwards all her marking paled away until they scarcely seemed visible, being hardly deeper than cream color, at which time she was killed by accident. A Mr. J. D. Yeoman narrates a case of a Malay cock and hen, his own property, and of the Birmingham prize strain, perfect in color and shape, with yellow legs and beak, which produced two young cockerels (at the time of his writing nine months old) in all respects similar to the old red cock except in the color of their necks, which, instead of being red, were a yellowish white color. There was exactly the same difference between the old and the two young cocks, as between a black-breasted and a duck-wing game cock. A gentleman who kept English and foreign pheasants in an aviary in England instances another unexpected change which occurred in a bird of his. A Chinese silver pheasant hen, four years old, without any premonitory symptom, at a single moult became altogether white, and nothing save the actual presence of the strange contrariety of color betokened her any way affected; her health was unimpaired, and her brood in the following year did not betray any change in their descent. This bird's eyes were changed from a very deep hazel to a perfectly bright red, and the latest account of her is that she yet maintains inviolate the unsullied purity of plumage she so capriciously assumed. In the *Sporting Magazine* of 1810 is an illustration from a painting by Ward, of a game cock which changed color from black-breasted red to white, the change having taken place in his third or fourth moult.

The Mandarin Duck.

The Mandarin Duck is certainly the most gorgeous of all the ornamental duck tribes. We are indebted to the Celestial Empire for it, for which reason we suppose it is also called the Chinese Teal. It closely resembles the Carolina or Wood Duck, and with it is classed by naturalists as a sub-genus of the common duck *(Dendronessa)*, with shorter bill and pendant occipital crest. At what period they were first introduced into Europe is uncertain; but in 1830 Sir John Bowring obtained, with the greatest difficulty, a few pairs to send to England. It is also said that previous to this, an enthusiastic fancier at Rotterdam had imported two pairs, and from these two importations nearly all the domesticated specimens in Europe have been bred. A single pair was imported in 1871 by a gentleman in New York, an ardent poultry fancier, which we believe is the only pair in this country. It is stated that the Mandarin Duck is a wild species, appearing about the month of May in the various countries watered by the river Amoor, and disappearing again about August. It is, however, from the country north of Pekin that the Chinese Mandarins obtain their specimens. About the month of August they are to be met with in flocks of large and small numbers, but scarcely or ever within gun shot, they are so very shy. Like the Carolinas, they are not unfrequently seen perching upon trees in wild and out of the way places. When penned for exhibition or other purposes, the domesticated drake is very quarrelsome, and often injures his mate, sometimes killing her, especially if not accustomed to her previous to being placed in the same pen. The specimens imported by the New York gentleman already alluded to would seem to have been well domesticated, as we are informed that they run with the large ducks, geese, turkeys, &c., feed with them, and seem to be as much at home as any other fowls.

"In size," says Mr. Wright in his Poultry Book, "the Mandarin is very small, though no precise limit of weight can be given. The shape is light and neat looking, but the plumage of the drake almost defies description, nothing in the poultry world being so bright and gorgeous. The head has a large, long crest, pointing backwards, and which can be raised and lowered at will, the color of this crest being green and purple on the top, shading into chestnut and green in the long feathers which extend backwards. A broad stripe of rich cream-color extends from the front of the sides of the head, across the eye, to the back of the neck. The neck is furnished with a collar of rough, rich brownish red feathers, somewhat resembling hackles, and the front of the neck and sides of the breast are a rich claret or purple. Across the shoulders are two beautiful stripes of clear white, each shaded with black, behind which the sides of the bird are of a greenish or ashy yellow-grey, beautifully and most delicately pencilled in very fine lines with dark grey or black. The wings are furnished each with a peculiar shield or fan, standing nearly erect, and which are of a bright chestnut color, beautifully edged with green or blue. The feathers of the back are a brilliant light brown, and the under parts white or nearly so. The quills or secondaries are brownish grey, edged on the lower web with white. The bill is crimson, the legs a lightish pink, and the eyes a bright black. The garb of the duck is much plainer, being a mottled all over of greenish

brown, with greyish underparts. About May the drake loses his conspicuous feathers, and even his wing-fans and crest, and becomes colored very much like the female; in August he begins to resume his fine clothing, and by September is again in full plumage.

"In China, domestic specimens of these ducks are called La-chi-ki, and are very highly prized, being considered to exhibit striking examples of conjugal affection and fidelity; whence it is common to carry a pair in a gilded cage in marriage processions, and afterwards present them to the newly married pair, as worthy objects of their imitation. So highly are they valued that when Dr. Bennett wrote to a friend in China to buy him a pair, he was informed by this friend that he could send him two live mandarins to Australia with far greater ease than the Mandarin Ducks. The same authority gives the following as an instance of the conjugal fidelity for which, as well as for their great beauty, these ducks are so prized by the Chinese:—'One day Mr. Beale's aviary at Macao was broken open and the male bird stolen. His poor mate remained in a retired part of the aviary, and refused to be comforted. She would scarcely take any food, and allowed her plumage to become dirty. In vain did another drake endeavor to console her for her loss; she rejected all his advances and remained disconsolate. After some time the lost bird was discovered in the hut of a Chinese of the lower class, and was brought back again. As soon as he recognized his old abode, he expressed his joy by flapping his wings and quacking vehemently; and no sooner did his mate recognize his voice, then she almost quacked to screaming with ecstacy, and flew to meet him, and both expressed their joy by crossing necks and quacking together. Next morning the returned spouse fell upon the unfortunate drake who had made advances to his mate in his absence, pecked his eyes out, and otherwise so disfigured him as to occasion his death in the course of a few days.'"

Scurfy Legs in Fowls.

A correspondent of the *Field* writes: "One of my hens, an old golden-spangled Hamburgh, is much disfigured by excrescences on the legs and feet; she looks as if she had been treading in dough, and as if the dough had hardened. I examined her minutely to-day, and rubbed off some of the scurfy matter. It was removed without much difficulty, but the part beneath was quite raw. Curiously enough, what look like small toes are growing on her feet, and quite a long spur has been developed at the back of one leg. Another hen, a young silver spangled, shows symptoms of the same disease, and her spurs have grown considerably. The hens show no signs of uneasiness. Several of my pigeons have died lately. They mope, gradually grow weaker and weaker, and at last are quite unable to fly. They linger, some for three days, some longer; but none have yet recovered. I cannot account for the mortality among them. Perhaps you will enlighten me with respect to both fowls and pigeons, and suggest some remedy." To which the editor replies: "The scurfy matter on the legs of the hen is very common in Cochins and Brahmas. It has been examined microscopically with great care by Dr. Moxon and Mr. Tegetmeier, and it has been ascertained that it depends on the presence of a minute acarus allied to the itch insect in the human subject. The remedy is to soak the legs in warm water, so as to remove the scurf without injury, and then to apply sulphur ointment, or the ointment of green iodide of mercury may be used, as it is very destructive to acari, and is a specific in mange in dogs. With regard to the pigeons, they are probably bred from weakly parents, or are too closely interbred."

THE COCHIN NOT DEGENERATED.—A veteran poultry breeder writes the *London Field*, that in his opinion, "we do not possess any breed in a more primitive and less degenerate state than the Cochin; that the Cochin is one of the least, if not the least domesticated fowls we possess."

Correspondence.

Rustic Work.

A lady correspondent, who has evidently had her "eyes about her" while attending the recent exhibitions, asks in reference to the rustic seats, &c.—some of them sorry enough specimens of their kind—which

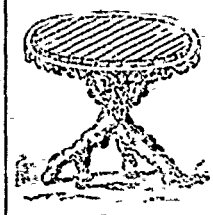


Fig. 1.

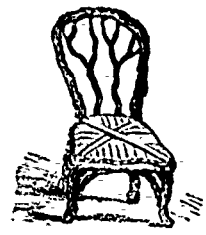
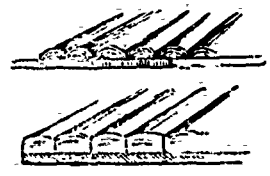


Fig. 5.

were occasionally met with on the tour of inspection, "How it is possible to construct such beautiful articles out of so very crude materials," and concludes by wishing us to furnish the necessary designs, &c.



Figs. 2 & 3.

We may remark at the very outset that taste and ingenuity are the two essential requisites to the successful performance of work of this sort;—taste in

Fig. 7.

arranging the materials in that easy, natural style which produces a striking effect, and ingenuity in so fastening the various parts that the greatest neatness

Fig. 8.

Fig. 9.

is secured at the smallest possible sacrifice of strength and durability.

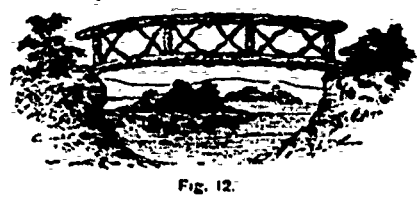


Fig. 12.

The materials used in rustic work are the undressed branches and limbs of trees, the twisted, grotesque-looking roots of the cedar, and the wild vines so abundant in our swamps and wooded ravines. These should be cut late in the season, as the wood is said to last longer than when cut in spring or summer. The fastenings consist of wooden pins, nails or wire, as the strength and nature of the work may demand; the latter is, we observe, more generally used for the purpose now than formerly, owing no doubt to the facility with which it accommodates itself to the various nooks and corners met with in this sort of work, and which are sometimes so difficult to secure with nails or pins. Figure 9 represents a rustic table, the top of which is constructed of a material known in "Rustic" art as mosaic wood work, made by splitting small branches as nearly through the centre as possible and nailing or pinning the halves, flat side down, on a board, as represented by figs. 2 and 3. The semicircular frames of the chairs (figs. 5 and 7) are made of a stout, well-twisted wild vine. The table (figure 1) is neither more nor less than the trunk of a tree sawed off a few inches below a spot from which not fewer than three limbs diverge at nearly equal angles; these limbs are then shortened to the proper length, the article is inverted so that the limb stumps become the legs of the contrivance, a circular board covered with the mosaic work already described is nailed on the opposite or upper extremity, and the work is done. Fig. 8 represents a seat, the back of which is attached to the trunk of a shade tree, and fig. 12 shows a nice design in rustic bridge work.

Stone Blasting with Dynamite.

(*To the Editor of the* CANADA FARMER.)

SIR:—Will you kindly insert in your paper the experience of a young farmer (14 years of age) in blasting stone with dynamite. I read an article in the CANADA FARMER some time since on the wonderful power of this agent, and pursuaded my father to purchase some with a view to giving it a thorough trial. It has exceeded our highest expectation. We tried its effects on an embedded stone, 3 feet in diameter, that had been travelled over for years, and with only a light charge inserted in a 5-inch hole the boulder was shivered into fragments, some of the pieces being sent whizzing through the air a distance of 120 yards. I have stated that the depth of the hole drilled in this instance was 5 inches; perhaps for a larger stone the depth would have to be proportionately increased. There is no doubt at all that dynamite is just the thing for stony farms, and I would confidently recommend my fellow farmers to give it a trial.—I am, &c., T. R. HOGG.

Carrick, Nov. 5th, 1874.

[We insert the communication of our young friend with very much pleasure, and trust he will favor in the future with many such instances of practical experience. With reference to the depth of bore necessary, we may state that from what we have seen of the capabilities of the new blasting agent, a 5-inch hole will be quite sufficient in all ordinary cases. It is sometimes difficult of course to determine the depth to which a stone or boulder may be bedded in the ground, and under such circumstances it is best to ensure success by boring a little deeper, but in ordinary cases a 4 or 5-inch bore will prove quite as effective as one double that depth. We have seen very large stones shattered by simply laying on them a charge covered with a few shovelfuls of earth, and firing it in that position.—ED. C. F.]

Costly Wheat.

(*To the Editor of the* CANADA FARMER.)

SIR,—Under the above heading the *Meaford Monitor* of a recent date publishes the following statement:

"At the late Provincial Exhibition an American gentleman got a sight of a few heads of a new kind of wheat said to have been grown in Collingwood township; and seeing a chance for speculation, he obtained the assistance of Mr. Chas. Grant, who was attending the fair, to search up the grower and secure the wheat, promising and afterward

paying him $50 for his services. On returning home Mr. Grant was fortunate enough to find the man, and at once informed his keen-sighted American friend, who came along promptly and bought up 200 bushels at $5 50 per bushel! The lucky grower had promised 25 bushels to a local dealer, but the American was determined to secure the wheat and thus monopolize the sale of the whole for seed; and he paid for the 25 bushels $350! Is all this true? the reader will ask. So at least Mr. Grant assures us. He saw the wheat threshed; helped to bag it up, and saw the money paid for it. What kind of wheat is it, and who is the lucky grower, will be asked! The wheat has a double head (so much we have seen), is very like if not actually the Egyptian variety, and was grown by Mr. Donald Smith on the eastern slope of the mountain. The difference between the Egyptian and this Smith wheat is, the former is a fall wheat, while the latter is a spring variety. The appearance of the grain is precisely like fall wheat, but we are assured that it was both sown and reaped this season."

If you or any of the readers of the CANADA FARMER can inform me as to the reliability of the statement, and the name and peculiarities of the wheat referred to, I shall feel very much obliged.—I am, &c.,

AN OLD SUBSCRIBER.

[The paragraph referred to by our correspondent has been going the rounds of the press for some time, but we are quite unable, either from personal knowledge or any information we can get, to express any opinion upon the matter. We are very much inclined to think that the whole thing is one of those periodical humbugs which by some means or other find their way into the press. If there is any truth at all in the statement we are open to conviction, and our columns are open to any who may feel disposed to set us right.—ED. C. F.]

Canker in Fowls.

H. Parker, Toronto, writes: "Will you kindly inform an old subscriber of a remedy for chickens suffering from a complaint which appears to cause great pain and difficulty in swallowing: occasionally they pump up, apparently choking, and are unable to swallow any food, except indeed, as already stated, with great difficulty. I am afraid I shall lose them all."

[The disease would seem to be "Canker," or, as it has lately been called, "Ulceration." It usually occurs about the head, commencing with a watery discharge from the eyes, which by degrees becomes of a firmer character, and assumes an offensive odor, the nostrils being at first unaffected. Such are the first symptoms of this disease, and is not unlike roup. Having assumed the character described, it then extends to the throat, covering the tongue with ulcerous formation, and sometimes entirely filling the glottis and larynx with the diseased secretion, and killing the fowl by actual suffocation, as in the most aggravated cases of roup. Cleanse the inside of the fowl's mouth with a solution of alum, after which rub it well over with burnt alum well powdered; continue this daily until a cure is effected. Your birds being in a bad condition, we would advise you to give each a pill of tobacco and grease, which will cause them to throw up much of the impurities in their throats and crops, and therefore cleanses them. When this has worked well, give each chicken a pill of bitter aloes about the size of a pea; this gives the bird's digestion a tone, as well as cleaning out. Feed on soft food. Give your yard a thorough cleaning, and dust the floor and perches well with carbolic of lime; wash the inside of the poultry house with a solution of carbolic acid—three ounces of the acid to twelve quarts of lime water.—ED. C. F.]

We would state for the information of R. Simpron, that a short-horn steer was butchered last week in Detroit that weighed 4,110 pounds alive; weight of dressed beef, 3,000 pounds; hide, 140 pounds, and rough tallow, 300 pounds. This is supposed to be the largest animal ever slaughtered for beef on this continent.

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The Canada Farmer.

TORONTO, CANADA, NOVEMBER 16, 1874.

Utilizing Railway Slopes.

The great proportion of our railway slopes and embankments, not only in Canada but in other portions of the world as well, are, as a rule, just as they were left by the railway contractor, but since over-run with natural weeds. In some few cases indeed, in older countries and in close proximity to large cities, a certain amount of ornamentation has been attempted by sowing them with grass seed; but the great proportion of them has been left to the tender mercies of Dame Nature, to spread unaided her own covering in her own way. The natural growth thus creeping along is usually the creeping wheat or couch grass (*Triticum repens*) which, generally speaking, serves as a species of binder for keeping the embankments from running or slipping. It is exceedingly difficult, however, to keep this couch grass restricted to the slopes. Its tendency, its very nature is to creep, and it will creep along with marvellous rapidity in loose soils, insinuating itself into the adjacent pastures, and causing interminable annoyance to agriculturists on both sides of the line of road. Whilst withering on the slopes too its dried stems are exceedingly troublesome, and, worse than all, they are, in nine cases out of ten, the cause of so much mischief happening from railway fires. Being dry as tinder and at the same time of tough and wiry fibre, they retain within themselves the almost essential conditions of a burning fire, spread or carry the conflagration far and near, and with it the destruction that invariably follows. Litigation, profitless and in many cases useless, is the consequence, resulting often in favor of the railway companies, who of course leave no stone unturned to show that the fires have been occasioned in some other way than by sparks from their engines. Now, there is a remedy for all this, or at least for much of it, and the expense of utilizing that remedy would be more than repaid to railway companies in the saving to them annually of considerably more than their law costs in fire suits. It will have been noticed, no doubt, that wherever there is a railway filling or embankment, the weeds which in course of time spring up on it are precisely similar to those which grow on the soil whence the "filling" was taken—i.e. the weeds are indigenous to itself, no matter from what depth it has been dug. Where such growth then is known to have been the *Triticum repens*, the slopes should be hoed and grubbed thoroughly, and then sowed down with good grass seed. Numerous experiments have repeatedly shown that the soil to almost any depth is literally saturated with the seeds of both annual and perennial plants, which require only atmospheric and solar influence to revive them and cause them to sprout and grow. By the hoeing and grubbing system then, myriads of these noxious weed-seeds are destroyed ere they germinate, and go to waste; whereas, if allowed to progress without such means being adopted, the roots will be found to penetrate deep into the ground, and can only be eradicated by a process of trenching. As they are at present, they prove in most cases curses instead of blessings, whereas were slopes, in places where the soil, declivity and exposure are good, only properly cleaned, the danger of destruction from railway fires might be obviated, and not only so, but many perennial plants might be introduced which could be turned to good account for feeding and other useful purposes. Amongst these latter are several varieties of forage plants of the leguminous or pea-tribe, which are sometimes observed growing wild in clusters here and there on railway slopes, as if proceeding from a common centre. Could the seeds of these only be collected and properly utilized, they would serve excellently for feeding, either in the green or dry state—such as the sweet milk vetch, the bush vetch, the pea, &c.

Many other plants suitable for the manufacture of oil—hence called oil plants—would be found to succeed very well, such as the peppermint, spearmint, thyme, and balm. The hundred-leaved and damask roses, the oils and water of which are now in inordinate demand, could also be cultivated on these embankments with every success. Nor need there be any limitation to perennial plants only. Many others of medicinal qualities could be raised with ease, amongst which we might mention the chamomile, the horehound, tansy, wormwood, and the wild convolvulus, either or all of which would feel quite at home on these declivities properly exposed. The chicory also, which is of incalculable use to chemists and coffee dealers, would succeed equally well. Or we may come to fibre-yielding plants—so useful, for instance, in paper-making, known usually as different varieties of "yuccas," all of which would grow and flourish with success in these situations.

Another change which is coming largely into vogue in England and Scotland, is the decoration of railway stations, and the ornamentation of the grounds around them with gardens properly and pleasingly laid out. Why should we not have a similar taste manifested here? Putting side by side all the railway slopes, embankments, and station grounds of Canada, they must, in the aggregate, embrace several thousands of acres. Speaking of them as at present, in general terms, they are not beautiful but the reverse; in many cases to this reverse is added positive danger at certain seasons from fire sparks; whereas, by the expenditure of a little extra money and the display of a little more taste, they could all be turned into not only spots of beauty, but at the same time tracts of exceeding usefulness and profit.

DESTITUTION IN THE UNITED STATES.—An officer sent from Fort McPherson, Neb., a few days ago, by General Ord, to visit all sections of the grasshopper district, reports that he finds no cases of actual starvation, but much suffering, some of which has been relieved from various sources. Relief must be given, or hundreds will starve before winter is half over. Within ten days many will be without a pound of corn or flour. The present aid they are receiving is but a drop in the bucket unless the Government aids them. The alternative is fearful.

A Maritime Provincial Exhibition.

Encouraged by the success of the exhibition recently held at Halifax, the *St. John, N.B., Telegraph* now advocates the holding of a Maritime Provincial Exhibition, two years hence, in one of the leading towns of that province, and asks the press of the maritime provinces to aid in carrying out such an undertaking. The proposal appears to meet with the hearty approval of the people of Nova Scotia and Prince Edward Island, the only dissentient voice coming, strangely enough, from the capital of New Brunswick itself, the opinion of the *Fredericton Reporter* being that "we had better do something which shall be creditable to our own province first, before we talk about entering into competition with our neighbors." We have always been under the impression here in Ontario that our New Brunswick friends are quite capable of making, as they have frequently made in the past, a most "creditable" display in many if not all of the departments usually represented at an agricultural exhibition, but in this we may possibly have been mistaken or misinformed. At any rate, the objection made savors strongly of a disposition to hoist the white feather, and contrasts rather unfavorably we think with the wide-awake and progressive views of our St. John contemporary, who says: "It would do the people of the maritime provinces no harm to be brought into more intimate contact with each other; to meet in the social circle; to mingle in friendly and honorable rivalry in the workshop or the farm, or the factory; and we trust that the press of the maritime provinces, as the leaders of public opinion, will aid in working up the industrial contest and making it a grand success."

Viewed from our own stand-point, and as a means of bringing into closer commercial relations and fellowship the manufacturers, agriculturists and business men generally of the several provinces, we regard the project as a most admirable one. It is amazing how little the majority of us know of the vast resources of the sister maritime provinces, and it is difficult to conceive of a more effectual or feasible plan of becoming acquainted with them than that now under consideration. Scores of agricultural implements and other articles manufactured and used in Ontario are all but unknown in the outlying provinces, as the numberless letters of inquiry we receive during the course of the year amply attest, and there are few of our own manufacturers who would not pick up something new in their line, or imbibe some fresh ideas by attending an exhibition of the kind. Let our maritime friends unitedly set their shoulders to the wheel, and we have no doubt whatever the exhibition will prove alike "creditable" and successful.

The Great Manitoulin Island.

Most of our readers will no doubt recollect of the migration some time since of a number of Bruce, Grey and Simcoe farmers to the great Manitoulin. A correspondent of *The Globe* who has had ample opportunities of becoming acquainted with the agricultural capabilities of the island, and the condition of its inhabitants, says:—Comparatively few of the young men of Ontario are aware that within the limits of our Province there are good accessible lands, at 50 cents per acre, to be procured. Having just returned from Manitoulin Island, I may state that the crops have been above the average, though most of them were sown so late, in so hasty a manner, that in the older parts of the country they would have been worth nothing. I saw spring wheat sown on the 15th of June and harvested on the 30th September, which proved a very fair yield. There is no summer frost, no midge, no Colorado beetle, a few grasshoppers on burnt land, and general satisfaction with results.

The portion of the island bordering on the lake is nearly all burnt land, and presents a rather forbidding aspect; within the coral reef which encloses the centre of the island, the land is heavy clay loam covered with magnificent hardwood—chiefly maple—and so level that reapers and mowers will be used on every lot when clear of stumps. The settlers are chiefly from North Grey, North Simcoe, and the district between Toronto and Kingston. They all seem well satisfied with their choice, and hopeful for the future.

The chief grievance at present is the winter isolation; but this will probably be overcome by a party who propose a winter express, should they meet with a favorable response from the parties chiefly interested.

I predict a rapid and flourishing settlement on the Manitoulin, and feel assured that the island and Indian peninsula will, when properly known, become one of the chief grazing and fruit-growing regions of the Dominion.

The proximity of the Georgian Bay and Lake Huron renders the climate more British than any other part of Canada; and trees keep green and fruit ripens till quite late in the fall, in fact there is seldom frost till the snow falls from clouds engendered in colder regions.

Bush and Prairie Fires in the United States.

The widespread drought experienced in all parts of the United States during the past few months has seldom been paralleled. With the exception of an occasional local shower there has been no rain since August over an area of territory that stretches from Maine to Texas, and from Minnesota to the Gulf of Mexico. Fortunately the drought came too late to materially curtail the crops, but the scarcity of water in some sections is seriously felt. In those states west of the Missouri River, especially, the suffering for even water to drink is really painful. "Lately," says *Forest and Stream*, "we made a tour westward through ten states into the Indian Territory, and throughout the whole route we found the water courses nearly dry. Through beds of rivers that usually flow in ample volume, rivulets barely trickled. In South-western Missouri, Kansas, and the Indian Territory, the beds of creeks were totally dry, and the game deserted the country. Those farmers who had water in their wells sold it by the barrel to those who travelled a dozen miles to get it. Vegetation is everywhere parched, the prairie grass is dry as tinder, and when set on fire consumes in a flash. Over the limitless expanse dense clouds of smoke [illegible] up all day in all directions, and the blaze of a [illegible] running fires lit up the night. The damage [illegible] in various ways on these vast plains is very considerable, but small when compared with the results that follow fires in the woods, such as we find are raging in a dozen different states at once. In the Dismal Swamp, Virginia, among the 'knobs' of Pennsylvania, along the Pan-Handle of West Virginia, in a dozen counties of Ohio, Indiana, Illinois, and Kentucky, on the Highlands of the Hudson River, in New York State, in the southern part of Alabama, in Wisconsin, and in fact, *all over*, fires are burning in greater or less degree, in some cases attaining the magnitude of almost uncontrollable conflagrations, destroying vast areas of valuable timber, barns, dwellings, and stock, impoverishing farmers, and scattering destruction. The Peshtigo conflagration and fires that raged two years ago on the borders of the great lakes, were more terrible in the loss of life they entailed, but we believe that such general and widespread fires never before consumed simultaneously so much of the wealth of this country."

Provincial Ploughing Match.

The Provincial Ploughing Match, District No. 4, under the auspices of the Agricultural and Arts Association of Ontario, came off on Wednesday, the 28th ult., on the farm of Mr James Rankin, three miles east of Stratford. There were 56 competitors in all, 24 in the first class, 25 in the second, and 7 in the third. The soil was in good condition, says a local paper, though possibly it might have been improved by a little rain. The match attracted a large crowd of spectators, the side line from the gravel road to the field being crowded with vehicles of every description, and not less than 2,000 people gathered together. The weather was lowering all day, but fortunately rain did not descend till after four o'clock, when the ploughmen had finished their labors. No less than 56 competitors in all were on the ground, and the ploughing was characterized by experts as unusually good throughout, there not being a badly ploughed ridge among them all. The ploughing commenced at ten o'clock precisely, and closed at four. The land allotted to each was a trifle less than one-third of an acre. The following members of the Provincial Board Committee were present:—Messrs. L. E. Shipley, warden of the county of Middlesex, Stephen White, Charing Cross; Sheriff Gibbons, of Huron; James Trow, M.P., and Joseph Salkeld, Downie, President N. R. Agricultural Society. Messrs W M Curtis, Potters Hill, James Robson, London Township, and E. McKerral, Chatham, acted as judges in the first and third classes; Messrs. Alex. Gardiner, Kincardine, Stewart Ward, Goderich, and H. M. Chesney, Seaforth, in the second class. The prizes were awarded as follows:—

FIRST CLASS.

1, William Phipps, Potters Hill, $50.
2, Valentine Otto, North Easthope, $40.
3, John Marquis, Potters Hill, $30.
4, John McGarvin, Chatham, $20.
5, A. Riddell, North Easthope, $10.

SECOND CLASS.

1, John Cahill, Ellice, $35.
2, James Harburn, Stratford, $30.
3, John Laing, Cromarty, $25.
4, Robert Buchanan, Goderich, $15.
5, James McGowan, Granton, $10.

THIRD CLASS.

1, James Gardner, Farquhar, $25.
2, Wm. Steele, Avonbank, $20.
3, Thomas Forsyth, Brussels, $16.
4, John Dunn, Gore of Downie, $12.
5, George Paterson, North Easthope, $10.
6, James Morrison, Ratho, $8.
7, Wm. Smith, Embro, $6.

The Lumber Trade of New Brunswick.

The *St. John's Telegraph* gives an interesting account of the progress of the lumber trade in New Brunswick. Last year was the most prosperous one in that department which that Province ever knew. The tonnage engaged in the business from St. John alone exceeded by 20,000 tons that of any preceding season. This year, so far, there has been a falling off in boards, but upon the whole the trade for the first ten months of '74 does not compare so badly with that of the preceding one, as the following table shows:—

	1873.	1874.
Deals	181 61[illegible],929 ft.	185,0[illegible],017 ft.
Boards	61,576,930 "	40,134,440 "
Pine Timber	1,034 tons	454 tons
Birch do	8,037 "	17,333 "
Pickets	3,159 M.	3,873 M.
Shingles	1,951 M.	2,071 M.
Laths	103,137 M	80,017 M
Clapboards	16,000 pcs.	117,000 pcs.
Sugar Sh'ks	663,176	335, 63
Spars	1,379	3.7
Sleepers	47,940	26,369
Staves	30 M.	20 M.
Knees	3,238	10,034
Poles	11,249	1,997

The business in deals for 1874 promises to be much larger than that of 1873. The most of these go to Europe—353 cargoes having been sent in that direction during the first ten months.

The shipment of boards has fallen off greatly since last year, owing to the bad times in the States; but with the revival of trade in that country, which may be anticipated at no distant day, this item is also expected to show much more favorably. We are glad to see that the *Telegraph* speaks very hopefully of the future. The establishment of direct steam communication with the British West Indies and Cuba will benefit the whole of Canada, but will be a special boon to the Maritime Provinces.

THE ENGLISH CROPS.—The *Mark Lane Express* of the 10th inst., says:—"The weather the past week has been mild. Roots which at one time seemed hopeless, now show quite a crop. Moisture was wanted in abundance, but there is now some apprehension lest vegetation may go on too fast, and be checked by frost. Wheat-sowing is nearly over. In consequence of the absence of ice, every European port keeps open, and shipments are hastened. Foreign arrivals and the dampness of the weather operate against an advance in the price of wheat. Not one European market notes a rise, while in many there has been a fall of a shilling. Continental speculators and shippers are hanging back, notwithstanding a reduction in freights."

Exports of British Columbia.

The prosperity of any one member of the Canadian Confederation is a matter for congratulation on the part of the whole, just as when one member suffers the effects permeate the whole body, and all the members suffer with it.

The exports of British Columbia for the year ending on the 30th June, 1874, amounted to $2,061,743, an increase of $269,396, as compared with the statement for the corresponding date of last year. The produce of the mines this year amounted to $1,351,145, of which $278,213 was coal. Animals and their produce amounted to $330,625; forests, $260,116; and fisheries, $114,118. Gold has been nearly stationary, but coal has risen fifty per cent.; animals twenty per cent.; and as much may be said of lumber. For its population, very few countries can make such an exhibit of export trade, for it is nearly $200 per head of all its civilized population. For a wonder, also, British Columbia expects to show her exports for the year to have been above her imports; a very uncommon occurrence indeed. The prospects for 1875 are specially good. Coal will show a large increase; so will all the other staples; while work on the Pacific Railway will also give all the provincial industries a healthy and yet not an excessive impetus. Most cordially do we say, "Let British Columbia flourish." If she does so as much as we in the east wish her, she will be prosperous indeed.

American Woodlands.

In discussing the distribution of American woodlands, Prof. Brewer says that though Maine is the great source of pine and spruce lumber, the hardwood species predominate in that state. The wooded area of New England is not diminishing, but the amount of sawed lumber is lessening—an indication that the trees are cut younger. In the Middle States the wooded area is sensibly and rapidly becoming smaller. The New England and Middle States furnish hard-wood trees; in the South-eastern States, from Virginia to Florida, is a belt of timber which supplies the hard and yellow pine; and the North-western region contains immense areas of common pine.

From the Gulf of Mexico to the Arctic Ocean stretches a treeless area three hundred and fifty miles wide in its narrowest part, and eight hundred and fifty miles wide on our northern boundary. West of this region is the narrow wooded Rocky Mountain region, and west of this is the barren region of the Great Basin. On the Pacific coast are some of the noblest forest regions of the world; and official Government reports say that the forests in some parts of Washington Territory are heavy enough to "cover the entire surface with cord-wood ten feet in height."

ELEVEN NORMAN HORSES were sold at the Chicago Exposition, recently, for $18,000.

PARTIES in Annapolis, N.S., are preparing to ship 3,000 barrels of apples to England.

THE *Pictou (N.S.) Standard* says that the potato disease is very prevalent, and has done much damage to the crops.

A COMPANY is forming in England with a capital of £4,000,000 sterling to develop the resources of the West Indian colonies, and Jamaica in particular.

MR. WILLARD F. POND, of Worcester, has raised this year on an acre and a quarter of land in that city, two crops of hay, the first weighing 9585 pounds and the second 6171 pounds.

MR. BEECHER got $250 for his address to the agricultural fair of Caledonia county, Vermont, and $250 for another address delivered on the following day at the fair of Grafton county.

THE *Clinton (Ill.) Register* chronicles the extraordinary yield of 344 bushels of first-class oats from five acres, being at the average of sixty-eight and four-fifths bushels per acre. They were grown on the farm of Mr. Jeremiah Kelley, of De Witt County.

THE BRITISH PROTECTORATE over the Fiji Islands has been formally inaugurated. A code of laws has been framed, taxes imposed, and all the other blessings of civilisation brought within reach of the natives.

IN MEXICO the mosquito is an insect of considerable commercial importance. It is caught in nets and sold as food for birds. Many families gain a livelihood by making mosquito-catching a profession.

A FABULOUS YIELD.—A California farmer claims to have grown ninety bushels of wheat to an acre, for eleven acres, the past season, of clean white Australian seed, from sixty pounds of seed to the acre—one pound thus producing ninety pounds.

THE BEAUTY of California woods, especially of laurel and redwood, and their susceptibility to a high degree of finish, make them particularly valuable for purposes of ornamental work, and they are rapidly attracting the attention of manufacturers both in this country and in Europe.

THE PORK PACKERS, at their convention in Louisville, adopted the report of the business committee, changing the standard weight of a barrel of pork to 190 pounds instead of 196, as heretofore, and making the maximum of shoulder pieces 85 pounds instead of 90.

LARGE POTATOES.—In the Lieutenant-Governor's garden, inside the Fort, were grown this season the following quantities of potatoes from 1 lb. seed each of the three varieties named: Vermont Early, 64 lbs; Burnell's Beauty, 49lbs.; East Vermont, 62½ lbs. Of the last two varieties one potato of each weighed respectively 2 lbs. 10 oz., and 3 lbs. Had it not been for the grasshopper incursion much more astonishing results than these could have been reasonably expected.—*Free Press (Manitoba.)*

A NEW INDUSTRY for women has been commenced in England by four ladies of standing in London. It is that of home decorative artists. They undertake the whole furnishing, upholstering, furniture, and all that tends to embellish the interior of a dwelling. They are said to be remarkably clever and very successful. They have served a regular apprenticeship, and acquired a thorough knowledge of the business. It would seem to be a business peculiarly fitted to the taste for and love of the beautiful inherent in women.

THE *Scientific American* describes a strange fertilizer. At Stratford, Connecticut, where mosquitoes are as thick as a fog, lives an ingenious Yankee, so they say—believe it who may—who puts the insects to profitable uses. He has invented a large revolving scoop-net covered with lace, which is put in motion by a windmill, water power or steam. The lower half of the scoop is placed in water. The upper half moves through the atmosphere, and at each rotation draws an immense number of the "squitoes" down into the water, where they drown and sink to the bottom. Every revolution of the net draws in an ounce of mosquitoes, or a ton for 32,000 turns of the machine. The mosquitoes thus collected make a splendid manure for the land, worth $45 a ton.

THE Marquette, Manitoba, Agricultural Exhibition was held on the 5th October. The display of roots and vegetables was very fine. Two melons exhibited by David Morrison, and weighing twenty-four pounds each, attracted considerable attention. The grain is described as making a very good show. Wheat was a pretty good sample, though not quite as plump as might have been. Oats and barley were of a rather inferior quality. Dairy produce made a good show. The ladies' department was well supplied with fine specimens of work. McVicar & Co. made a fine display of factory cloths. Walter Lynch and Kenneth McKenzie exhibited largely in thoroughbred cattle. W. Shannon and J. Stewart made a good show of sheep; and pigs were entered by Mr. Fawcett, K. McKenzie, and W. Kitson. In horses, those of K. McKenzie and Mr. Setter receive special mention. The display of poultry and agricultural implements was creditable.

SWINE STATISTICS.—The following table shows the number of swine of all ages in the states named, as reported by the Department of Agriculture at Washington:—

States.	1874.	1873.
Tennessee	1,410,000	1,596,600
West Virginia	351,000	351,600
Kentucky	2,098,000	2,173,700
Ohio	2,017,400	2,227,000
Michigan	510,800	544,500
Indiana	2,496,700	2,713,900
Illinois	3,403,700	3,700 300
Wisconsin	648,8 0	6.8,400
Minnesota	201 200	209 600
Iowa	3,693,700	3,847,700
Missouri	2,6[illegible],00	2,656,500
Kansas	484,600	457,200
Nebraska	123,500	121,300
California	448,600	427,300
Oregon	171,200	163,300
Total	20,547,400	21,783,700
Decrease	1,236,300	

THE NEARNESS of the civilized world to the use of uniform weights and measures is shown by the fact that France, Holland, Belgium, Spain, Portugal, Italy, Switzerland, the whole German Empire, and Austria all use the metric system. Only two great countries stand in the way of its entire and universal adoption—England and the United States. In both of these its use is legal but not compulsory, and probably they will have to move together in taking any steps. Dr. Barnard lately said that the weakness of the Gladstone Government only postponed but will not prevent the adoption of the metric system in Great Britain.

THE EXHIBITION of the Acclimatization Society of Berlin is very interesting, and comprises a great variety of objects, such as rabbits of various breeds, birds and fishes (principally contributed from the Berlin Aquarium), silk-worms, cocoons, and raw silk, plants, fruits, and vegetables, the show of potatoes, chiefly English and American varieties, being very remarkable. Cabbages, carrots, and mangels put in a fine appearance; but I noticed no turnips, and the soil of Berlin seems quite unable to produce a decent lettuce. The director of the aquarium, Dr. Hermes, exhibits a pretty little *terrarium* stocked with young alligators, and dwells with unction in the catalogue upon their rapid growth and healthy appearance.

A SINGLE STAVED BARREL.—An Indiana firm have patented a process which they are employing, by which a barrel is made consisting of only one stave. This is accomplished by turning a steamed log, of the length of a barrel, against a sharp knife of the requisite length, and thus cutting it into a continuous sheet of wood of the thickness for a barrel stave. Enough of this ribbon of wood is then cut off for the circumference of a barrel, and crozed or chamfered by suitable machinery. To give the barrel the proper shape, slits are cut in the two ends by a gang of saws, and the heads are thus brought to the requisite size as compared with bilge. The usual number of hoops are put on, and the barrel thus made is said to be as strong as those manufactured in the ordinary way. The principal saving is in the amount of time and labor involved in the process, the cost of material being about the same as in the ordinary manufacture.

FALSE ECONOMY.—We do not believe that any of the CANADA FARMER readers are guilty of the following practices; but we will enumerate a few that a "Farmer's Wife" in the *New York Tribune* complains of: Stop putting lard in your butter; if we must eat hog's fat, pray give it to us pure and not mixed with rancid butter. Girl, stop dipping your fingers in the bucket of milk and wetting the cow's teats; of all dirty habits this is the worst. Wives, stop setting your cream jar in the family living-room to make cream sour. Husbands, stop hanging your socks on that same cream-jar to dry over night. Women, stop putting your butter in the back bedroom to stay till you are ready to go to market. Ladies, stop holding your noses when you go into your cellars to attend to your milk. You might as well smell the rat and mould as to eat it daily in your butter and cream. Women, stop telling fibs when you take your butter to the store. Did anybody ever know a woman to sell butter over a week old? Stop coloring your butter with annatto, and then asking folks if they can't taste the blue grass in it.

FALSE AGRICULTURAL PHILOSOPHY.—The partial failure of the wheat crop for three seasons in England has caused some English farmers to suppose that the land has become "sick" of small grain culture, and that it needs the rest of a long fallow to recuperate. The *Mark Lane Express* thinks that the failures of the last three years are largely due to improvident culture, and especially to the lack of fertilization. The fine yield of 1874 is cited as sufficiently explosive of the old idea of "sickness of the land," an agricultural superstition dating back to the commencement of the Christian era. Columella, a Roman writer of the first century, wrote against the croakers of that day, who tormented themselves and the public with this absurd chimera. He charged the failure of crops upon the slothfulness and ignorance of cultivators. It is astonishing how old errors constantly reproduce themselves. In spite of the advance of science and the diffusion of intelligence, men who have opportunities of knowing better surrender themselves to childish delusions, and gravely propound the most fanciful hypotheses to account for facts they do not understand. In the present case, however, the truth lies near the surface. Common sense shows sufficient cause for the late crop-failures in the incompetence or listlessness of farmers themselves. These sharp criticisms find a legitimate application on this side of the Atlantic.

Agricultural Intelligence.

Kentucky Short-horn Sales.

Since the date of our last issue several important Short-horn sales have taken place, notably those of the great Kentucky breeders, Messrs G. M Bedford, E. G. Bedford, and James Hall, Paris, and B. B Groom, Winchester, Kentucky. At the first of these, that of G. M. and A. Bedford, on the 27th ult., the attendance of breeders from all sections was very large, and the prices,—in view of the fact, that a considerable proportion of the animals offered were descendants of "Brittania," a cow without any recorded pedigree,—were considered very fair The following is the sale list :

Females.

5th Duchess Louan, 3 yrs., E K Thomas, Middletown, Ky	$1,5[illegible]
23rd Duchess of Goodness, 3 yrs., T. J Megibben, Cynthiana, Ky	2,000
Geneva's Duchess of Goodness, 9 mos., Robt Holloway, Monmouth, Ill	1,500
Zora 10th, 5 yrs, J. Niccolls, Bloomington, Ill	4[illegible]0
Martha Washington, 5 yrs, T. J. Barbee, Paris	410
Phillis Goodness, 1 yr., R. Holloway	375
Emma, (aged), S. B. Baldwin, Newton Falls, O	130
Emma 2nd, 10 mos., T. Martin, Mercersburgh, Pa	115
Autumn Belle (not breeding) withdrawn	
Phillis Thorndale and heifer calf, 2 yrs., J. Snell's Sons, Canada	510
Susan 17th, 1 yr, J. Niccolls	200
Susan 16th, 1 yr., J. Comstock, Liberty Mills, Ind	500
Susan 5th, 8 yrs, A. Crain, Durham Park, Kas	[illegible]
Susan 12th, 4 yrs., J Niccolls	[illegible]
Susan 7th, 9 yrs., H Miller, Paris, Ky	120
Zora 19th, 2 yrs., J Niccolls	300
Attosa 8th, 2 yrs., H. Miller	250
Queen Mary 6th, 9 yrs., A Mariett, Cambridge City, Ind.	200
Nelly Bly 2nd, 2 yrs., W. H. Richardson, Lexington, Ky.	550
Lavina 8th, 1 yr., W. Warnock, Kentucky	170
Florentia, 15th, 9 yrs., J. Scott, Paris, Ky	115
Florentia 22nd, 4 yrs., J. Niccolls & Son	[illegible]
Her heifer calf by 14th Duke of T., same	17
Zora 4th, 13 yrs., (not breeding), J. Scott	7[illegible]
Louan 42nd, 8 yrs, (not breeding), A. Crane	130
Bride 8th, 11 yrs., B. Paris, Lexington, Ky.	75
Lizzie Buckner, 5 yrs, R. Holloway	250
Lizzie Buckner 3rd, 2 yrs., R. Holloway	400
Lizzie Buckner 4th, 10 mos., W Warnock	51[illegible]
Mollie, 6 yrs., J. Niccolls	145
Mollie 2nd, 2 yrs., J. Niccolls	27[illegible]
Mollie 3rd, 8 mos., J. Niccolls	140
Mary Belle 3rd, 18 mos., W. E. Sims, Paris, Ky	410
Mary Belle 2nd, 11 yrs., Mr Woodford, Paris, Ky	15[illegible]
Florentia's Duchess, 2 yrs, W. Warnock	21
Florentia's Goodness, 1 yr., W Warnock	170
Florentia's Airdrie 2nd, 1 yr., T Junkins, Weston, O	15[illegible]
Florentia 19th, 6 yrs, C. Corbin, Ky	150
Florentia's Airdrie, 3 yrs., S. Corbin	2[illegible]
Ivanora 12th, 5 yrs., S. Corbin	15[illegible]
Ivanora's Duchess, 1 yr., S. Corbin	190
Breastpin, 6 months, J. Niccolls	1[illegible]
Duchess of Herod's Creek, 1 yr, A Mariett	19[illegible]
Bride 14th, 6 yrs, W. Warnock	1[illegible]

Bulls.

15th Duke of Goodness, 22 mos., D. Pingrey, Blairstown, Iowa	475
Rosy Duke 2nd, 1 yr, J. Howser, Marion, Ohio	4[illegible]
17th Duke of Goodness, 1 yr., R. Holloway	2[illegible]
Louan Duke 4th, 1 yr., J Chorn, Towanda, Ill	205
Duke Wiley, 1 yr, W Warnock	[illegible]
20th Duke of Goodness, 1 yr., R. Holloway	[illegible]
Emmerson, 8 mos., Milton Briggs, Kellogg Ia	175
Emmet, 19 mos., M Briggs.	132
15th Duke of Goodness, 1 yr., C. J. Ward, Cedar Rapids, Iowa	200
11th Duke of Goodness, 2 yrs, H. Roseberry Paris, Ky	400
Walker, 2 yrs, D. B. Bovington, Willoughby, O	140
Walker 2nd, 10 mos, B. F. Gooch, Mason, Texas	10[illegible]
Pat Maloney, 6 mos., W Warnock	120
Marquis of Goodness, 8 mos., W. Warnock	125

Summary.

43 cows and heifers	Average, $345	Total, $14,8[illegible]
14 bulls and bull calves	do 2[illegible]	do 3,640
57 head	Average, $324	Total, $18,47[illegible]

At the close of the sale a number of Cotswold rams and Berkshire pigs were sold at good prices.

Sale of B. F. Bedford and James Hall.

This sale took place on the same day as that of E. G. Bedford, and was well attended.

Cows and Heifers.

Cherry 3rd, 5 yrs, J Niccolls	$500
Rose Lind 6th, 2 yrs, D Talbott, Paris, Ky	810
Emma Lind 2nd, 1 yr., C. W. Goff, Monmouth, Ill	500
Daisy 4th, 18 mos., T. S. Lewis, Pt. Pleasant, Va	425
Effie 5th, 5 yrs., J. Mariatt, Cambridge, Ind	400
Effie 6th, 6 mos., J. W Emory, Richmond, Ky	730
Nannie Dudley, 3 yrs, S. Evans, Paris, Ky	320
Maid of Sweet Valley and calf, 4 yrs., J Niccolls	440
Ella Price 3rd, 2 yrs, J. Kephart, Pt. Pleasant, Va	400
Mary Ann 3rd, 18 mos., [illegible] H Taylor, Frankford	275
Graceful 4th, 1 yr., W. Warnock	310
Lady Goodness 5th, 1 yr., R Holloway	620
Valley Belle 2nd, 2 yrs., W N Orfutt, Georgetown	400
Lena 3rd, 6 yrs., R. M. Harris, Ky	475
Sallie Picket, 6 yrs., J. Sudduth	200
Sallie Picket 2nd, 2 years, S. Black, Frankfort, Ky	300
Valley Belle, 2 yrs., F. J. Barbee	$1150
Lena 2nd, 7 years, J. Chorn, Towanda, Ill	275
Lena 4th, 1 yr., J. Chorn	275
Lena 5th, 5 mos., J Niccolls	575
Daisy 6th, 2 yrs, D Talbott, Paris, Ky	80
Daisy, 10 yrs., J. Hutchcraft, Paris, Ky	190
Rose of Sharon, 6 yrs., J. Snell's Son, Canada	350
Valley Rose 2nd, 2 yrs. W. E. Sims	575
Valley Rose 4th, 1 yr, W. E Sims	410
Valley Rose 2nd, 3 years, G Tucker, Paris, Ky	270
Daisy 7th, 2 years, Mr. Emory, Richmond, Ky	340

Bulls.

Prince Climax 3rd, 8 mos, M Briggs, Kellogg	230
Col Airdrie, 2 yrs, B F Gooch, Mason, Texas	130
Star Mason, [illegible] years, L M Bedford, Paris	205
Prince Climax 2nd 2 years Dr Kenney, Paris, Ky.	480
Belvidere 3 mos., L D Doty, Middleton, Ohio	13[illegible]
Sir Rollins, 1 yr, T Martin, Mercersburg, Pa.	140
Lord Bertram one yr, J Chorn	150
Duke Maynard, 6 mos, W Warnock	110
Lord Wiley, 6 mos, J Niccolls	400
Duke Bertram, 6 mos, S Matthews, Carlysle, Ky	110
San Francisco, 1 year, A J Dunlap, Galesburgh, Ill.	200
Prince George, 10 mos, S. Corbin, Harrison Co	12[illegible]
Nathan, 1 yr, D Bedinger, Boone Co., Ky	16[illegible]
Forester, 7 mos, M Kennedy, Warren, Ohio	120
Prince Geneva 2nd, 5 years, R. Holloway, Ill	1300

Summary.

27 cows and heifers	Average, $417	Total, $12 07[illegible]
15 bulls and bull calves	do. 274	do. 4,1[illegible]0
42 head	Average, $385	Total, $16,1[illegible]

Sale of E. G. Bedford.

This sale came off at Paris, Ky., on the 28th ult., resulting as follows :

Females.

Loudon Duchess 3rd, 7 yrs, C M Clay, Jr, Paris.	$2,200
Loudon Duchess 7th, 4 yrs, T J. Megibben, Cynthiana.	5,100
Loudon Duchess 9th, [illegible] yrs, Jno B Kennedy, Lexington	6,000
Loudon Duchess 11th, 3 yrs, T J Megibben	4,400
Loudon Duchess 13th, 2 yrs., J H Spears, Tallula, Ill.	2,000
Loudon Duchess 15th, 1 yr, R. Holloway, Monmouth, Ill.	2,70[illegible]
Loudon Duchess 17th, 6 mons. J. H. Spears	2,250
Cora 3rd, 4 yrs., A M Lockridge, Greencastle, Ind	1,50[illegible]
Cora 4th, 3 yrs., W. E. Sims, Paris.	600
Louan 35th, 9 yrs., John Snell's Sons, Canada.	1,080
7th Louan of Oakland, 4 yrs., J. Niccolls, Bloomington, Ill.	1,175
Louan of Woodlawn Villa, 3 mons, J. H. Spears & Sons.	950
Kitty Clover 2nd, 10 yrs, H Miller, Paris	520
Her heifer calf, the same.	300
Kitty Clover 3rd, 5 yrs, F. J. Barbee, Paris	625
Kitty Clover 6th, 1 yr., W. Warnock, Cynthiana	1,000
Cannondale, 7 yrs., H. P. Thompson, Winchester	1,50[illegible]
Cannondale 2nd, 3 yrs., E L. Davidson, Springfield	2,075
Cannondale 3rd, 2 yrs., F P Bedford, Paris, Ky.	1,500
Lady Adela (imp.), 5 yrs., J Niccolls, Bloomington, Ill.	1,075
Gazelle of Woodlawn Villa (imp.), 2 yrs., J Niccolls	92[illegible]
Lady Bates 4th, 7 yrs., E. K. Thomas, Middletown, Ky	2,3[illegible]

Bulls.

21st Duke of Airdrie, 4 yrs., J. H Spears & Son	7,025
Loudon Duke 13th, 2 yrs., A Crane, Kas	500
Loudon Duke 15th, 1 yr, S. Meredith & Son.	2,100
Loudon Duke 19th, 7 mons, W R. Duncan, Towanda, Ill	3,500
Wood and Star, 22 mons., M Briggs, Kellogg, Iowa.	500
Oakland's Duke, 1 yr., B. Gooch, Mason, Texas	22[illegible]
Bertram, 1 yr., R. Cochrane, Harrington Co, O.	240
Oakland's Duke 2nd, 5 mons, S. E. Cooper, Francisco Ville, Mich	320
Northumberland 4th, 3 mons, F J Barbee	270
[illegible], 3 mons., W H Richardson, Lexington, Ky	42[illegible]
1st Marquis of Bute, 2 yrs., F. J. Barbee.	875
2nd Marquis of Bute, 3 mons, D C. Anderson, Mt. Sterling, Ky	280
Jasper, 3 yrs., J Hambrick, Greencastle, Ind	2[illegible]5
Sterling Duke, 1 yr, J Sudduth, Newtown, Ky	300

Summary.

22 cows and heifers	Average, $1,900	Total, $41,800
14 bulls and bull calves	do. 1,199	do. 16,785
36 head	Average, $1,627	Total, $58,585

Sale of B. B. Groom, Winchester, Ky.

This sale came off as announced on the 29th ult. The herd, as all breeders are aware, was unusually well bred, Mr. Groom having spared no expense in introducing as much Bates blood into his animals as he could avail himself of. The following were the figures realised :—

Females.

Thorndale Lady, 4 yrs., J. Niccolls & Son, Bloomington, Ill	$1100
Thorndale Lady 2nd, 1 yr., same.	725
Bell Duchess 2nd, 2 yrs, C. C. Childs Independence, Mo.	2550
8th Duchess of Springwood, 3 yrs., D S. Bussing, Amsterdam, N Y	1500
10th Duchess of Springwood, 9 mos., J. V. Griggsby, Winchester, Ky	1000
Duchess Cancenza, 7 yrs, S Meredith & Son, Cambridge City, Ind	2000
Oxford Cypress, 2 yrs., H. B. Thomson, Thomson Station, Ky	1150
Oxford Beauty's Duchess, 1 yr., D. S. Bussing	1500
Oxford Countess 2nd, 6 yrs., C. C. Childs	1000
Oxford Countess 3rd, 3 yrs., D. S Bussing	67[illegible]
Oxford Countess 4th, 2 yrs, Hall & Taylor, Paris	825
Oxford Countess 5th, 7 mos., J Niccolls & Son	675
Oxford Countess 6th, 6 mos., C. C Childs	900
Oxford Countess 7th, 5 mos., H B. Thomson	750
Oxford Countess 8th, 5 mos, N. G. Pond, Millford, Ct.	650
Princessa 2nd, 3 yrs., J. Niccolls & Son	2000
Princessa 3rd, 6 mos., A Charles, Cedar Rapids, Iowa	1025
Princessa 4th, 5 mos., E. Cobb, Kankakee, Ill	1[illegible]
Oxford Gwynne, 5 yrs, J. Niccolls & Son	$1500
(Nos. 22, 23 and 24, the pedigrees furnished Mr. Groom for those being fraudulent, passed.)	
Princess Louisa, 1 yr., C. C. Childs	400
Thetis Gwynne, 2 yrs., D. S. Bussing	8[illegible]5
Belle Dyke, 9 yrs., J. R. Shelly, Shannon, Ill	700
Belle 6th, 4 yrs, H. P. Thomson	625
Belle 7th, 3 yrs., C. C. Childs	700
Belle 8th, 2 yrs., H. P. Thomson	600
Belle 10th, 6 mos., C C. Childs	500
Belle 11th, 4 mos., do	200
Fairy Belle 13th, 3 yrs., D. S. Bussing	225
Fairy Belle 14th, 2 yrs., W. Gaitskill, Mt. Sterling, Ky	300
Fairy Belle 15th, 2 yrs., C. C Childs	250
Fairy Belle 16th, 2 yrs, W. H Richardson, Lexington, Ky	310
Constance Lady, 18 mos., H P. Thomson	850
Constance of Woodbine, 6 mos., W. H. Richardson	600
Constance of Waterloo, 1 yr, E. Cobb, Kankakee, Ill	700
Rosemary 1st, 4 yrs., H. P. Thomson	200
Rosemary 2nd, 18 mos., J. Sudduth, Newtown, Ky	200
Rosemary 3rd, 6 mos., H P. Thomson	200
Carnation 3rd, 4 yrs, J Sudduth	210
Gloster's Bridegroom, 5 mos., W. H. Richardson	400
Lily Red, 2 yrs, S Meredith & Son	625
Wild Flower, 2 yrs, Hall & Taylor.	600
Miss Wiley of Vinewood, 5 mos., W Warnock, Cynthiana, Ky	1075
Prize Flower, 6 yrs, N. G. Pond	1030
Peach Bud Carrie, 3 yrs., J. Niccolls & Son	310
Saddie, 3 yrs., J. Sudduth	225
Lily of Lorn, 2 yrs, A W Thomson, Versailles	200
Dolly Duchess, 2 yrs., A. Charles, Cedar Rapids, Iowa	175
Lady Newham 6th, 4 yrs., A. Crane	1100
Mistletoe 2nd, 3 yrs, J. Niccolls & Son	725
Gracie 2nd, 6 mos., do do	320
Peri Pink, 9 mos., J. R. Craig, Canada	1205
Peri's Portia, 7 yrs., J. Niccolls & Son	210
Windsor Belle, 3 yrs. J. Sudduth	200
Blush of Glen Flora, 3 yrs., Bush & Hampton, Winchester, Ky	1125
Bloom Dawn, 6 yrs., J. Niccolls & Son	675
Bloom of Manlius, 1 yr., W. E. Sims, Paris, Ky	475
Second Lady, 4 yrs., S. Meredith & Son	1400
Oxford Violette, 3 mos., J. F. Childs, Independence, Mo.	210
Daisy Airdrie, 3 yrs, W Gaitskill	180
Daisy Airdrie 2nd, 7 mos., T. Martin, Mercersburgh, Pa	125
Rosaline, 7 yrs., J. F. Childs	[illegible]50
Rosella, 3 yrs., J Niccolls & Son	1000
Butterfly, 2 yrs., J. Bratton, Mt. Sterling, Ky	205
Rosette 3rd, 8 mos., G. F. Collins, Bellmore, Ind	140
Lady Malakoff, 7 yrs., D. Reid, Mt. Sterling, Ky	825
Pride, 5 yrs., J. H. Spears & Son, Tallula, Ill	250
Fashion, 7 yrs., J. Scott, Paris, Ky	170
Atlanta 9th, 5 yrs., J. H. Spears & Son	250
Bride 9th, 10 yrs., A. Crane	180
Red Rose, 4 yrs., T. G. Calmet, Winchester, Ky	500
Orelia Princess, 11 yrs., J. Sudduth	260
La Petite, 3 yrs., J. Niccolls & Son	190
Souvenir, 3 yrs., T. G. Calmet	370
Rouge Thorndale, 2 yrs., A. W. Thomson	450
Susie Wells 2nd, 9 yrs., J. Niccolls & Son	210
Cherry Rookh, 5 mos., A. Crane	240
The Flower of Warlaby, 5 yrs., A. Charles	800
Florentia 13th, 10 yrs., A Crane	105
Maid of Orleans, 4 yrs, W. Warnock	410
Oxford Myrtle, 2 yrs, A Crane	600
Oxford Myrtle 2nd, 1 yr., L P. Muir, Paris, Ky	550
3rd Duchess of Oxford, 9 mos, D C. Anderson, Mt. Sterling, Ky	150
Lady Maynard, 5 mos, A. Crane	160
Louan 15th, 14 yrs., W. Handy, Mt. Freedom, Ky	340
12th Louan of Clarendon, 4 yrs., J. F. Childs.	210
White Maggie 1st, 18 mos., T. C. Anderson	210
Princess, 6 yrs., R. M. Harris, Ky	160
Flora's Rose of Sharon, 5 yrs., J. Niccolls & Son.	725
Flora's Rose of Sharon 2nd, 3 yrs., A. Crane	600
Thorndale Beauty, 5 yrs., H. P. Thomson	725
Thorndale's Beauty 2nd, 1 yr., M. G. Thomson	300
Myra Saladin, 6 yrs., J Sudduth	250
Fancy Saladin, 7 yrs., J. Sudduth	150
Fancy Saladin 2nd, 10 mos, J. R. Shelly	160
Bridegroom Fairy, 2 yrs., same buyer	280
Mazurka of Lyndale, 5 yrs., (not breeding), W. N. Orfutt, Georgetown, Ky	390
Mazurka Duchess 3rd, 2 yrs., A Charles	1205
Valley Maid Duchess, 3 yrs., A. Marlatt, Cambridge City, Ind	200
Symmetry Rose 3rd, 5 yrs., J Niccolls & Son	310
Symmetry Rose 4th, 5 yrs., J. Niccolls & Son	240
Symmetry Rose 5th, 3 yrs., H. P. Thomson	425
Symmetry Rose 6th, J. Niccolls & Son	475
Symmetry Rose 7th, 2 yrs., S. Meredith & Son	400
Symmetry Rose 8th, 2 yrs., W Handy	475
Symmetry Rose 9th, 18 mos., W. Handy	410
Symmetry Rose 10th, 2 yrs., W. Handy	250
Symmetry Rose 11th, 5 mos., R. Holloway	420
Aurora, 2 yrs, A. Crane	90
Fairy 5th, 4 yrs, J. Niccolls & Son	8[illegible]5
Fairy 6th, 5 mos., J. Niccolls & Son	505

Bulls.

Oxford of Springwood, 7 mos., W. E. Sims, Paris, Ky	1025
Magician, 1 yr., C. C. Childs	100
Baronet Oxford, 6 mos., J. H. Spears	130
Dixie Duke 5th, 7 mos., H. Sodowsky, Indianola, Ill	170
Patriot, 5 mos., J. R. Shelly	100
Airdrie Lad, 8 mos., B. F. Gooch, Texas	150
Nicanor, 7 mos., H. Clay	180
Brigand Prince, 6 mos., B. F. Gooch	105

Summary.

110 cows and heifers,	Average, $583	Total, $65,245
8 bulls and b. calves,	do 252	do 2,020
118 head	Average, $570	Total, $67,265

A STRANGE and fatal disease has broken out among the hogs in Davis Co., Ia., brought there by a lot of hogs imported from the grasshopper regions of Kansas. Nearly all the hogs have since died. They get poor, weak in the hind parts, and finally lie down and die.

COLOR OF SKIN OF MILCH COWS —The *Practical Farmer* says of a deep yellow skin, "This test is considered infallible. No cow, with a deep yellow skin, has yet been known to give poor milk."

A DISH-RAG PLANT.—The *Indianapolis Journal* notices a curious plant exhibited at the office of that paper, which was obtained in Southern Kentucky, and which, for the want of a better name, the finder has called the "dish-rag plant." It is described as "a large pod a foot and a half in length, and about two inches in diameter. Inside this is a spongy, fibrous growth, which, when dry, is of a light, yellow color, and useful for scouring metals, etc." We don't see just where the dish-rag comes in, but suppose it may perhaps rank as a dish-cleaner, as the scouring rush does to honest soap and sand.

DERBY GREAT CHEESE FAIR.—This great annual cheese mart was recently held, when the "pitch" of the primest Derbyshire dairies was quite up to the average. One of the first dairies sold fetched the high price of 84s. per cwt., but some were bought (those of an inferior quality) for 65s. per cwt Good dairies ranged upwards to 82s. per cwt., and the average of the "pitch" for a fair quality may be taken at from 75s. to 76s. per cwt. There are now six cheese factories in Derbyshire, in five of which the cheese is made on the American principle, but in the sixth (the Mickleover Dairy Company,) the Cheddar system is adopted.

WHAT A DOG DID.—An English paper has the following: A striking exemplification of the sagacity of a shepherd's dog has just come under notice on the farm of Higham, near Newburgh, in Fifeshire. The dog belongs to Mr. John Ballingall. The shepherd on the farm happened to lose a pound note, and after many hours' fruitless search for the bank note it was given up as lost. A collie pup, only four months old, made its appearance in the field where it was supposed the note had been lost, and with much importunity endeavored to make himself noticeable. The shepherd could not be bothered with its caressings, so grieved was he at his loss. After being ordered off some half-dozen times, the dog eventually stood up on its hind-legs, opened its mouth, and there was the note, folded just as it was when it went amissing! With much wagging of its tail, the animal laid the note at the shepherd's feet. This animal was once a despised one, but now it is a household pet.

THE POTATO DISEASE.—As for the fertility of the fancy in discovering explanations of potato disease, it is really a matter demanding the instant attention of psychologists, for it is evidence of wide-spread stupidity or insanity or vanity, or something equally dreadful, that should be cured by the Social Science Congress. The past season has been characterized by continuous sunshine, and potato disease was unheard of until the sunshine failed, and then the crops still in the ground became more or less diseased. There is no mystery about potato disease; it is a question of sunshine from first to last, and if Mr. Tolbitt is resolved to eradicate it, he must go to the sun and abolish his spots, and make such other arrangements as shall ensure to this globe uniform and favorable cosmical influences. A wet cold summer makes potato disease, a hot dry summer makes a healthy crop of potatoes. The facts are patent, and yet there is a crowd of clamorous people always ready with some nonsensical and injurious fancy to explain the cause and cure of the murrain that decimates the noble root.—*The Gardener's Magazine.*

THE HARVEST IN AUSTRIA.—It appears from the last harvest reports issued by the Ministry of Agriculture at Vienna, that the warm and dry weather which prevailed during the latter half of September has produced, on the whole, a favorable effect on the crops. In Bohemia, Moravia, and Silesia there was an average crop of potatoes, beet-root was of excellent quality but not abundant, and the flax crop was a failure. The condition of the maize crops in the Bukovina was satisfactory, as also in Central Austria. The vintage in Lower Austria has begun, and promises to furnish an average quantity of wine of good quality; in Hungary it is expected that the wine will be good, but below the average in quantity. The maize crops are very satisfactory in all parts of the monarchy.—*Eastern Budget.*

A PLOUGH TEAM OF MULES.—At the annual ploughing match of the East Surrey Agricultural Association, held at Addington, near Croydon, on the 14th ult., the second prize in the turn-wrest class was awarded to Alfred Hollands, in the employ of Mr. C. L. Sutherland, the plough being drawn by four large Poitou mules, from 15.2 to 16 hands high, whose steadiness of draught was very remarkable, and attracted considerable attention from the various agriculturists present. These mules have during the past summer been exhibited at the Crystal Palace, the Bath and West of England Show at Bristol, the Alexandra Park, and also at the Royal Show at Bedford, and have taken many prizes. It is gratifying to be able to record this success in the field as well as in the show-yard.

Breeder and Grazier.

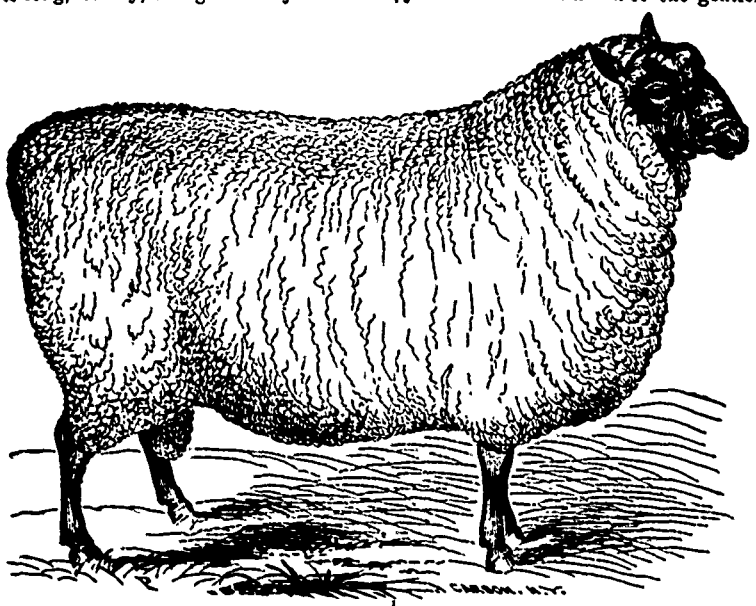
Hampshire Downs.

(*To the Editor of the* CANADA FARMER.)

SIR:—Please inform me through the medium of your valuable paper in what respects the Hampshire Down sheep differs from the ordinary Southdown, and which breed of the two you consider the better adapted to our Canadian climate?—I am, &c.,

J. G.

[Hampshire Downs are the result of repeated crossings of the pure Southdown on the native white-faced sheep of the southern and south-western counties of England. Professor Wilson, a good authority on the subject, remarks that "their leading characteristics are, as compared with the Southdown, an increased size, equal maturity, and a hardier constitution. The face and head are larger and coarser in their character; the frame is heavier throughout; the carcass is long, roomy, though less symmetrical



than the Southdown, and the wool of a coarser though longer staple. Their fattening property is scarcely equal to that of the pure Southdown. These points have all received great attention lately from the breeders; and the *improved* Hampshire Downs now possess, both in shape, quality of wool, aptitude to fatten, and early maturity, all the qualities for which the pure Southdown has been so long and so justly celebrated. The lambs are usually dropped early and fed for the markets as lambs, or kept until the following spring, when, if well fed, they weigh from 80 to 100 lbs." At some of the leading exhibitions in the neighboring states, the Hampshires occupy a prominent department, and are frequently awarded first premiums. "In some situations they are considered," says Mr. Randall, "preferable to the Southdowns, and great numbers were exported to the southern states previous to the breaking out of the late American war."—ED. C. F.]

The Check Rein.

The following communications to the *London Daily News* from Mr. Flower, an enthusiastic horseman, on the cruel practice of straining up the heads of horses in an unnatural position for the sake of the supposed "stylish" appearance, are as applicable to Canada as to England:

"You were so good as to insert a letter from me on this subject in your impression of the 10th ult., and I have been kindly responded to by many communications, public and private. I have also to thank you heartily in the name of humanity, for your excellent article on the 11th. Surely enough, one might think, had been said on this subject, but such evils are slow to cure. I have always paid much attention to horses and their treatment, and since I have lived in London have been particularly struck with the general unkindness of coachmen to their dumb slaves, and the ignorance and indifference of masters and mistresses. I seldom ride in the Park, or in the fashionable streets during the season, without having my feelings outraged by some flagrant sight of suffering and cruelty. When I have occasionally called the attention of a coachman to it or asked him to slacken a rein, he generally tells me to mind my own business, and if I spoke to the master he would probably say, 'Oh, the horses are not mine, I only hire them.' Whereas if I speak to a carter and explain to him how much more comfortably the animal would draw his load if left free, he usually thanks me, and often does what I suggest.

Indeed, I find as a rule much less sympathy between drivers and their horses in the upper than in the lower classes, and yet it is to prosecute the latter that the energies and funds of the Royal Society for the Prevention of Cruelty to Animals are applied. Beyond printing arguments, and distributing them to those who ask for them, the Society say they can do nothing; but surely this infliction of gag bearing-rein comes within the act for 'torturing animals,' under which there are hundreds of convictions every year. I have not heard of one gentleman or gentleman's coachman being brought to justice, though his horses may stand gagged and tortured for half the night. No wonder there are so many complaints of the want of good horses, of the high price, and of the wearing out so soon."

"Much has been written and said about cruelty to animals, and a very excellent society is doing much to suppress it, in many ways very successfully; but there is one most cruel and barbarous practice going on all around us, of which they take no notice, possibly because the perpetrators are in the higher classes of society, which really makes it much worse, for they ought to know better. This stupid and cruel practice is the use of the gag or Bedouin bearing-rein to carriage horses; which not only puts the animal to present torture, but by forcing the head into an unnatural position, brings on many painful and fatal disorders. Let any one watch the horses in the Park, or standing as they do for hours at the theatres, shops, &c., with foaming mouths and tongues swollen and hanging out, trying to get a little ease to their poor heads and necks by tossing them up, putting them sideways or in any possible position, vainly appealing to their unheeding or ignorant masters or coachmen to slacken, if only for a few minutes, the torturing rein, and then say if we can call ourselves a humane people! Probably, the master or mistress only hires the horses, and cares nothing about them, so long as they get through their work, perhaps thinking that a horse with his head stuck up in the air looks finer than in a natural and graceful position. Many other evils of this bearing-rein might be pointed out, especially when coupled, as they frequently are, with one or other of the atrocious bits now in use; but what I have now said may be enough to draw the attention of some who, while they consider themselves lovers of humanity, and are anxious to suppress cruelty when they see it in isolated cases and among the lower orders, yet are all the time inflicting it in this aggravated and senseless manner."

Wheat for Cattle and Sheep Feed.

Some authorities urge that it is positively sinful to use as food for beasts the staff of life, which in their wisdom they regard was meant for man alone, but when wheat is abundant and cheap, it is absurd and illogical to object to its conversion into butcher meat or dairy produce The important practical question is, How can it be profitably and safely used for feeding the animals of the farm?

Given whole and uncooked, as is done with oats or beans, wheat for most animals is difficult of digestion. Horses eating a feed of wheat instead of oats usually become uncomfortable, flatulent, and pained. From a full meal of wheat we have frequently seen horses suffer from enteritis and cammitis. The grain swells up and resists digestion, nor does gradual use appear to render raw wheat very suitable fare for hard-worked horses.

For cattle, sheep, and pigs it answers better than for horses, but requires to be given with some judgment. It cannot profitably be used whole. Roughly ground into meal, it may be advantageously mixed with cut roots, chaff cake, and other such food. Richer in albuminoids than most other articles of cattle food, excepting beans, peas, or lentils, it may very fittingly be conjoined with more starchy food, such as *Indian corn*, or with such purely saccharine food as treacle. We have repeatedly seen both cattle and sheep thrive, grow, and feed on 6 lbs or 8 lbs of a mixture of equal quantities of wheat and maize meals, used as adjuncts with roots and straw, and in England with roots and hay. At present prices treacle is a palatable and convenient addition to these meals. About a pound may be given daily to an adult cow or ox; and even double that quantity does not unduly relax the bowels when it is given, as it should be, mixed with cut straw and other such dry food It facilitates distribution to mix it with water, brewers' grain, or even with bruised cake or meal Where there are facilities for cooking, wheat may be advantageously boiled into a gruel, mixed with treacle, and poured over the straw chaff, which, when thus sweetened, is eaten freely by most descriptions of stock. By intelligently carrying out such a system, fresh, sound straw may be largely and profitably consumed; the mixture is not very costly. Roots and hay, scarce this year in many districts, may be greatly economised; a large head of stock may be kept healthily growing throughout the winter, and an increased weight of beef and mutton may generally be produced Even where roots are comparatively plentiful, farmers having abundance of straw will find that at present prices of the raw material, namely, the lean stock and the feeding stuffs, it will generally answer to use wheat meal, maize, and treacle tolerably liberally, and thus carry on increased numbers of good young stock, or even feed out well-selected animals for the butcher

An ingenious friend was wont some years ago, when wheat was cheap, to grind it roughly with maize, oats, barley, or pulse, and bake the mixed meals into cakes or bread This was used for every description of farm stock, for horses, pigs, and poultry, as well as for cattle and sheep, and for store as well as for feeding animals. The plan is, doubtless, theoretically correct. The baking cracks the starch granules, increases digestibility, and thus saves the animal some expenditure of vital force. The baked food is particularly palatable, is eminently suitable for young and weakher subjects, and for those being forced for showing; but the process is troublesome, requires a goodly amount of space and appliances, and for ordinary purposes the cost out does the profit.—*N. B. Agriculturist.*

Best Sheep for Getting Fat Lambs.

A writer in the *Irish Farmers' Gazette* gives his opinion that the Shrop and Border Leicester are about equally suited for the purpose, provided the latter is purely bred, and not one of the many mongrels selling under the name. I have known ewes to be divided between a Shrop and a purely bred Border Leicester ram, the ewes after being done with the ram mixed and fed together, the lambs sold in one market, and to net the same money or all but the same price. There is, therefore, only a toss up between the one or the other so far as the getting of fat lambs is concerned, and only one thing that I know in favor of the Borderer over the Shrop, namely, that should the lambs not feed fat from any cause, or that the price for fat lambs is not sufficiently remunerative, the produce of the Border Leicester in either case answers much better for storing over than the produce of the Shrop I may mention here that a Lincoln ram, if of the proper sort, will also get very good fat lambs, provided the ewes put to him are well wintered and well fed while suckling the young. The Shrop and the *pure* Border Leicester are, however, more prolific than the Lincoln, and stand about equal in this respect. There is no finer or better sheep than the Roscommon species. Everybody admires them, and on good land and with thin stocking to the acre they do well and pay well. As to their being purely bred, we will "let that fly stick on the wall. When the mud's dry it will rub off." One thing, however, must be said of the fine, large Roscommon sheep—namely, that they are still susceptible of great improvement. It is even a feather in the cap of the breed that they contain room for an alteration for the better. Their ridgepoles might be made fatter, and the backbone better covered with soft muscle, and were the tail-end heaved up somewhat in the best specimens, a level-topped, well-handling animal would be the result. I should say too that the tucked-up appearance of many of the breed might be altered with advantage, and the chest so widened that the temptation would be thereby offered to a "feller" intent on experimenting to try to wheel a barrow through between the fore legs. The present up and down form of the ribs of the large and fine Roscommon sheep might be also altered to the hoop or barrel form, on the principle of giving thereby plenty of room for the play of the heart and lungs, and at the same time for the carrying on satisfactorily of the "meat manufactory" within. A purely-bred round-ribbed, border Leicester ram on the Roscommon ewe would effect wonders in the way of giving rotundity to the carcase of the produce. Nor is this a proposal which is mythical. The cross, to my knowledge, has been successfully essayed. It is now years ago since I gave a rather small but highly-bred and beautifully formed Borderer for the purpose of improving the shapes and quality of one of the crack Roscommon flocks, and of bringing "order" in the frame and appearance of the produce out of the "confusion" of the construction and "getting up" of the "thorough-bred" and large Roscommon ewe, so generally admired and so fully appreciated.

The Back and Loins of a Horse.

When a horse's back is short the loins will be found to be broad and strong—what is called good; a circumstance arising from the circularity of the chest and the breadth of the hips—these four formations, viz., shortness of back, circularity of chest, breadth of hips, and strength of loins, generally being found in combination. It is a great matter that a horse should have good loins, and when these are associated with a long back, and the requisite length and substance of hind quarters, we may take it for granted that the animal possesses both speed and endurance Look at the hares and rabbits, greyhounds, deer, and such-like animals, and note what thickness of loins, and length and muscularity of hind limbs they all exhibit; while their fore parts amount to hardly anything in comparative substance It is impossible that a horse with thin narrow loins can last; the moment his feet sink in the dirt, that moment he will fail It is the good loin that can—and the only point that can—compensate for hollowness of back When the loins are good, not length, not even hollowness of back, are to be accounted objectionable points.

It is nonsense to pretend to prescribe that the back should be long or short, of this length or that; although we may, in a general way, fall in with the common description of what a back ought to be, and say, "that to be a good one, it should sink a little below (behind) the withers, and then run straight." The back will be too large or too short, or (though, to the observer, of unusual longitude or shortness, still) of the proper length, depending upon the formation and dimensions of other parts with which, in structure and action, it is associated.

A long back would ill accord with short legs, defeated in their operation; a short back would not require long legs, they would do too much for it. We have therefore long backed horses and short-backed horses, and yet with backs of proper length; because the longitude, whatever it may be, is that which is the suitable length for the machine of which it forms a part. A very common, but not less on that account reprehensible, custom among "judges of horses," is to find fault with a point, without any reference whatever to the general or particular conformation with which that point is consorted. Abstractly considered, it may be out of proportion; but considered correlatively, with out of-proportioned other parts in the same frame, it may be in the best proportion, or of such proportion as serves to compensate for faulty dimensions in other parts. A part most faultlessly fashioned and proportioned may—placed among certain other ill-formed or out-of-proportioned parts—appear itself to be the faulty piece in the fabric.

In an animal body, as in machines made by man's hands, the great object to be sought for is harmony between the constituent members; at the instant, we are not hastily to condemn any apparent disproportion, lest, on critical examination, it should turn out to have been given for the purpose of compensation—to make amends for some defective structure elsewhere, which may not at first sight have struck our attention.—*Prairie Farmer.*

The Value of High-priced Cattle and Sheep.

Those high-bred and high-priced Short-horns which have of late come in for a considerable amount of abuse at the hands of certain agricultural journalists, cost perhaps too much money, but that can't be helped; but to say that breeding entirely from certain strains is a mistake is open to question. Take two representative bulls, the Duke of Devonshire's Duchess bull and Lord Irwin; say nothing about pedigree, the latter may in a sense be the best beast; but there is no man half a judge, not to speak of pedigree, would prefer him to the Duchess bull.

Lord Polwarth's rams are the Bates of the Border Leicester sheep. Look what they make every year! There is no man who has done anything in the show-yard in Border Leicesters but has drawn more or less from Lord Polwarth's stock. Are they themselves show-yard sheep? Why does a practical hard-working farmer give Lord Polwarth 195 guineas for a tup? He could buy one at 20 guineas that would beat him in a show-yard. The latter would beat the former in a show-yard; but the practical farmer knows that his stock would not, and that makes all the difference. It is well known that Lord Polwarth has bred from the best of his own stock for a great number of years. They are close bred, but they improve the stock wherever used. If he were to follow the advice of the writers in the *Agricultural Gazette* he would not stick to high-bred ones, but would select a thick-fleshed well-woolled sheep from "A painstaking breeder," and would, I have no doubt, spoil his own flock, and thereby also injure the breed of Border Leicesters throughout the country.

So it is with Bates and Booth cattle of high descent. The big prices are the very thing that keeps the stream pure and helps to fertilize the whole Short-horn world. There is a certain potency in a small quantity of this high-bred blood—latent it may have been in the original—but when mixed with that of more plebeian origin it finds its way into those thick-fleshed animals which "painstaking breeders" like to see.—*North British Agriculturist.*

Feed for Stock—Selling Hay.

Is it cheaper to feed good straw with meal or roots than early-cut and well-cured hay, clover, and other grasses? This is a question of importance. We have tested and seen tested this more or less for many years. We find that circumstances alter cases. For the past few years it has been most profitable to feed straw, corn stalks and clover, with such additions of more concentrated food as was necessary, and sell the hay. In many cases we have known this to realise the most profit, and in some cases highly gratifying returns. The reason was, hay brought a higher price, and the coarser and cheaper fodder could be made to carry the stock, and with little expense for additional food, the stock coming out good in the spring. It was done in the most successful cases by feeding clover and corn stalks, sometimes with, sometimes without roots or oil-meal. The latter could be dispensed with where the fodder was early and well secured—corn stalks cut when the corn was glazed, and put into stalks so as to give a chance for *gradual* curing, thus ripening and filling out well the corn, and keeping green and sweet the stalks. If the season is favorable—fall dry—this can be done, and the forage may be stored in bulk. The autumn of 1871 was a favorable one, and cured large corn stalks, so that they kept in bulk during the winter. This is a cheap fodder, and one or two feeds of this, and the rest of good clover hay, also cheaply obtained (two cuttings per day), will keep stock in good condition during the winter. This more particularly with milch cows, steers and heifers; horses with little to do, and colts will do well upon it. This is a cheap and nutritious feed. Straw of the different grains, if cut when the grain is in the dough, and well cured without rain, will, when run through the straw cutter or steamed, answer a good purpose as a substitute for the corn-forage where corn has not been raised. Clover alone, however, will do it, and is preferable not only to all the coarser fodders, but may be used for all stock to the highest advantage, working horses excepted. Sheep, tegs, calves,

heifers, cows in milk or calf, or both, all will thrive on good, early cut and well cured clover hay; but it *must* be of the quality indicated. The hay, then, or some of it, may be sold.

This has been the practice of late years with some of our best farmers, and some not so high in the scale, who, but for this method, would not have fared so well; and we know of one case where it has been the means of saving the farm—the coarse fodder, well secured, was fed, and the hay sold at a high figure.

It will be said that this will impoverish the land True, it may be done with this result; but by proper management it can be avoided. There are those who sell their long hay, or part of it, yearly, and yet continue their land in good condition. What manure they have goes on the sod to thicken it The fall growth is another coat to aid it, and clover a still farther benefit. In this way the land is kept up. Not only that it may be improved. It is sod and clover that will surely do this And the sod and clover may be secured with a little manure, judiciously, rather frequently than heavily applied, and the fall growth retained. This is done, and we report it for the benefit of others.—F. G. *in L. S. Journal.*

Artichokes as Stock Food.

A correspondent of the *Kansas Farmer* relates the following experience with artichokes:

I planted about one-fourth acre with about one-half bushel, cut very small, dropped in furrows two feet and a half apart, and about eleven inches apart in rows; gave them about the same attention as potatoes. Early in September I cut them, before frost, and used the stalks to roof my stable, thinking they were good for nothing else; but I found it very difficult to keep my horse from eating himself out of doors He would leave corn and hay for these stalks I think I had about fifty bushels on the one-quarter acre, but they were very small, which made it tedious gathering them. I think they were too thick. I shall plant again this year. Top the stalks once or twice a year to make them stocky; cut them before frost; shock as corn; when cured, stack and cut them in the machine; mix with bran, steam or cook them if convenient.

I think they will furnish a large amount of valuable feed. I think the roots or tubers will grow all winter, when the ground is not frozen. Dig in the spring, or turn your hogs in to dig for you. They are choice feed for milch cows, and coming as they do early in the spring, when succulent food is scarce, help the yield of butter.

How to Drive Sheep.

Like many other persons, I handled sheep a long time before acquiring the art of driving them to the best advantage, when the sheep are turned on the road without any help to assist me. The first day I drove eight to ten miles, and got them in good pasture at night. The next morning, after getting under way, I found the sheep were very hard to drive; they wanted to lie down under every shade, and I labored hard all day, and only made seven or eight miles on the journey; and this was my experience for three or four days. I began at last to reflect as to the cause of the sheep driving so badly, and it occurred to me the reason was they had filled themselves during the night, and wanted to lie down and chew their cud, instead of travelling on a full stomach. I resolved to change my tactics at the next stopping place. Accordingly, when night came, instead of turning them into a pasture field as heretofore, I put them into a nice clean barnyard, and let them rest all night instead of eating. The result was that next morning when I turned them on the road I had to get before them to restrain them I found it necessary to use a long pole to keep them back, so marvellous was the change, and so impetuous was their anxiety to push ahead. The reason for this change was simply owing to the fact that the sheep had had a good night's rest, and were fresh and hungry.—*Cor. Am. Farmer.*

DON'T FEED RIPE HUNGARIAN HAY TO HORSES.—An Illinoisan writes:—"I have had quite an experience in feeding ripe unthrashed Hungarian to horses. In every instance, if continued long, the results were bad, in some cases rendering the horse unfit for service ever afterwards. I have always supposed too that millet would produce the same effect. My plan is to let either variety get first ripe for the seed to grow. I then cut with self-raking reaper, set low. I bind up like grain and let it lie in sheaf a few days. Then it is stacked, and threshed when convenient. When threshed, the straw is stacked again carefully, and fed out to stock through the winter."

The Dairy.

Questions and Answers about Cheese-Making.

The following questions were put to Mr X. A. Willard, an eminent authority upon cheese manufacture, and were so answered by *Moore's Rural New Yorker.*

X. A. Willard.—I have a few questions in regard to cheese which you will greatly oblige me by answering 1. What should be the proper feeling of a cheese well cured? 2 What effect would it have on a cheese press, the hoop to have the temperature in the curing room run as high as 76 deg to 84 deg? 3 Do you consider it an injury or any damage to have a cheese from the hoop, for the first few days it is on the shelves, leak? 4 Will a cheese properly made do so if the temperature is kept from 65 deg. to 70 deg? 5 In your "Practical Dairy Husbandry" you speak of cooling the curds well before putting to press and then press ten minutes, grind in milk, and then salt; would there not be danger of developing too much acid? Is the hot iron test reliable?—R. W MANAM.

The appearance and texture of a good cheese, ready for market, have been sometimes described We give what some of the noted English cheese-mongers say on the subject. The Messrs Corderoy, of London to use their own language, "Want cheese rich, solid fine-flavored, firm, sound, handsome, and that will continue to improve for twelve months, and longer, if required."

Mr. Bates, of Cheshire, says:—"The best cheeses made are firm and imperishable, keeping in the cheese room for twelve months or longer, the texture being solid but not tough, and the flavor fine"

Mr Titley, of Bath, describes the characteristics of a good cheese as follows:—"Mellow and rich in taste and flavor, and firm and full in texture."

Mr. Paterson, of Edinburgh, affirms that:—"A good cheese is rich, without being greasy, with a sweet, nutty flavor; clear, equal color throughout, of a compact, solid texture, without being waxy; firm, yet melting easily in the mouth, and leaving no rough flavor on the palate."

Under this process there will be less whey in the curds at the time of salting as a rule, than when the curd is allowed to develop fully in the whey, and the curds are then thrown upon the sink to drain.

The hot iron test is considered valuable by all cheese-makers who have tried it. It is reliable, and gives material assistance in making up an opinion as to the required acidity of the curds.

In all cheese-making one should not depend implicitly upon a certain set of rules. He must, on occasion, vary his processes to suit the condition of the milk, the action of the rennet, and the varied texture of the curds. He must exercise judgment and discrimination, and the more he studies and understands the nature of the material with which he has to do and the changes which it undergoes, the more likely will he be to reach desirable results

Mr. Harding, the great exponent of Cheddar cheese-making in England, says that "A good cheese is close and firm in texture, yet mellow; in character or quality it is rich, with a tendency to melt in the mouth; the flavor full and fine, approaching that of a hazel nut."

1. We should say that a good cheese, properly cured, has, under the hand, that peculiar firm, yet soft, velvety texture which, to the expert, is always satisfactory evidence of its quality. It is neither hard nor too soft, but will feel mellow rather than elastic, when pressed with the finger.

2. If the temperature of the cheese room is kept at 70 deg. to 75 deg. Fahr. and not above 76 deg., we should expect the best possible results—so far as curing is concerned. When the temperature is allowed to go so high as 84 deg and remains on this range for any considerable time, the cheese matures rapidly, and must be consumed early, or it will "turn in flavor." A large number of carefully-conducted experiments shew that the best temperature to secure a mild, clean flavor, is at about 70 deg. and not above 75 deg. when all the cream of the milk is used in the cheese If the milk is very poor or has been skimmed, the cheese made from it will bear, and should be cured in, a higher temperature than cheese made from rich milk. The quantity of rennet used also has an influence on the curing process—much rennet and a high temperature inducing rapid fermentation and a direct early decomposition or decay.

3. We should prefer to have no whey run from the cheese, though a slight moisture, for a few days after removing from the hoop, will do no material damage. A cheese that leaks whey to the extent of forming little pools of water on the floor, is in our opinion not properly made, and is not likely to turn out first-class, or perfect in flavor.

4. Yes, the trouble is not so much in the temperature of the curing room as in the manner in which the cheese is made. There are several causes for "leaky cheese;" the more common one, perhaps, is improper scalding of the curds, working them off too sweet—not getting them down close—resulting in a spongy curd. The press often will not remove the whey from such curds, but after they go upon the curing table and begin to ferment, the whey separates and passes off.

5. The particular process to which our correspondent refers, is the English Cheddar process, by which some of the finest flavored and best English cheese is made. In this process the whey is drawn early from the curds, and the acid allowed, for the most part, to develop in the curds heaped up in the vat and in the sink. With the whey removed the acid develops slowly in the curds, and the regulation of acidifying is under better control of the operator than when the whey is allowed to remain on the curds until the close of the process. To an experienced operator there is no trouble in regard to developing too much acid. The object of pressing the curds before salting is to expel the whey so that the exact quantity of salt required may be used. It is quite difficult to regulate the quantity of salt, from day to day, when the curds are salted before pressing, since we can only guess at the amount of whey which they contain, and more or less salt passes off with the whey. Many factories are troubled with unequal salting in their make of cheese, and not unfrequently considerable losses are sustained in the sales of cheese on this account.

During the past few years, at some of our "fancy factories," the Cheddar process has in part been adopted, and with the best results. The plan is to draw the whey early and allow the curds to develop acidity heaped up in the vat. When the right point has been reached, the curds are put through the curd mill and salted. The action of the salt checks acidity. Some of the very finest of the American factory cheese is made by this process, thus briefly outlined, but which we cannot give in all its details in this connexion.

Some Facts about Milk.

Milk consists of certain fatty or oily particles in solution, of caseine and of sugar of milk. The fatty matters do not exist in a free condition, but are enclosed in little globules which rise to the surface on account of their being lighter than the liquid in which they float. The casing or covering of the fatty matters or the skins of the little globules are composed of caseine or curd. The globules are of different sizes in the milk of different animals. Some of them are round, but others are oval or egg shaped.

Milk also contains, in addition, a certain portion of mineral matter, which consists of phosphate of lime and phosphate of magnesia, the chief constituents also of bones. In diseased milk there are certain other substances which may be said to be accidental and which cannot be identified by chemical tests, but only by the microscope.

The whiteness of milk is due to the opaque globules which are suspended in it. A bluish tint indicates a small amount of cream. The whiter or the more opaque it is the more curd and butter it contains and the richer it is. The quality of milk is usually better from September to November than at other seasons of the year, but the quantity is usually less at that time. If cows are not well fed as the winter approaches, the yield will not only be small but the quality will be poor.

In moist climates the yield of the cow will be more abundant but the quality poor, that is, more thin and watery than in dry climates. The moisture in the food will have a very marked effect upon the quality. It is an error to suppose, as many do, that the morning's milk is richer than the evening's. This depends very much on the character of the food which is consumed four or five hours previous to milking. If it is poorer at evening it will be found that the food consumed has been poorer in quality. The composition of cream varies as much or nearly as much as that of milk.

The whole of the cream rises in twenty-four hours' time when the milk is set at a temperature of sixty-two degrees. It is a mistake to suppose that more cream rises by letting milk stand thirty-six hours, as many do. The quantity will almost invariably be appreciably less and the quality poorer. The cream which rises first is the richest in quality, it being the largest globules that rise first to the surface.

A most careful experiment was tried to ascertain the proper time which milk should be allowed to stand to raise cream. Milk that was allowed to

stand sixty hours produced only twenty-seven pounds of butter, while an equal quantity standing only thirty hours produced thirty pounds of butter It was found also that one hundred measures of new milk yielded thirteen and a half measures of cream after standing eighteen hours, and the same quantity after twenty-four hours, but less than thirteen measures after standing forty-eight hours. The same experiment was carefully repeated, when one hundred measures gave thirteen measures after standing eighteen hours, and the same quantity after twenty four hours; but it gave only twelve measures after standing forty-eight hours. It was proved that eighteen hours, with milk standing in a temperature of sixty-two degrees, is better than any longer time, and that all the cream that is worth getting will rise in that time.

Milk that has been agitated or shaken up, as when sent by railway, throws up less cream than that which has been less disturbed. A careful trial was made to settle this point and here is the result One hundred measures of new milk after standing twenty-four hours at sixty-two degrees, gave twelve measures or twelve per cent; of cream, while at the same time a like quantity of the same milk, after having been gently shaken in a bottle, threw up only eight per cent., a loss of one-third in the quantity of cream This shows that the shaking the milk gets when transported by rail has the effect of breaking some of the cream or butter globules, the consequence of which is either that a portion of the fatty matter remains suspended in the milk, or, which is perhaps more probable, the cream which is thrown up becomes richer in fat.—*Massachusetts Ploughman.*

"Mamma, where do the cows get the milk?" asked Willie, looking up from the foaming pan of milk which he had been intently regarding. "Where do you get your tears?" was the answer. After a thoughtful silence, he again broke out: "Mamma, do cows have to be spanked?"

A combination ice and freezing house has just been patented. The freezing apparatus is on the top of the ice house, covered only by an awning It consists mainly of a water tank, from which the water flows in a thin stream down to inclined "cooling places" into canvas boxes, in which it is left to freeze. The ice being solid, it is removed from the boxes by the application of steam, and deposited in the house beneath.

Yield of Milk.—One of your correspondents asks how much milk may be expected from a dairy of twenty-five cows. I have no data for the exact number of cows named, but give the following yield of a thirty-cow dairy in Delaware Co, Pa The presumption from the figures is that the cows were fed high and kept fat, so that when one of them failed to pay for her feed by her milk she was sold to the butcher and a fresh one purchased. The yield, as given us, is, January, 7,131 quarts; February, 7,501, March, 8,588; April, 8,934; May, 9,946; June, 9,074; July, 9,134; August, 7,778; September, 7,284; October, 7,039; November, 5,910, and December, 6,202; a total of 94,525 quarts in a year, or 3,150 per cow per year—60 quarts to each cow per week—8 57 quarts per day. As a sequel, I may add that all these cows were selected by an expert, under the Guenon system of marking. If I knew the difference between the value of cows bought and cows sold, I would have data from which to answer your correspondent's second question.—*Buffalo Express.*

Difference in Taste Concerning Cheese.—The question whether a cheese is a good or bad one is to some extent one of taste. There is a fine demand at good prices for Swiss and Limburgh cheese, yet the average American finds it difficult to eat either, often unpleasant to be near them. Even in American cheese there is considerable difference. Thus we have heard complaints by grocers of the cheese made by a Wisconsin factory which stands high, and cheese from which have been sold this season for the New York and European markets at prices equal to any that have been paid in the state. These same grocers report their customers well pleased with cheese which buyers for the English market would consider decidedly inferior to the other. The latter cheese is soft, ripens quickly and suits the taste of the average American when comparatively new; although it probably will grow sharp and perhaps disagreeable with age. The other is unusually solid and harder, made with special reference to the English market, and its mellowness, richness and agreeableness will increase with age, up to a reasonable time. Both of these makes are good cheese judged by different standards. Each suits the taste of a set of consumers, while each is unsatisfactory if offered to another class with different taste.

Veterinary Department.

Diseases of the Osseous System of the Horse and other Animals.

Spavins, Splents, and Ringbones.

By custom a bony tumor which on any of the bones of the trunk would be called simply a bony tumor or exostosis, is, when situated on the inner and lower part of the hock joint, termed a spavin. What may be the etymological value of the word no one seems to know, but all horsemen clearly understand its significance as applied to the disease of the hock. The situation of a true spavin has been arbitrarily assigned; it must occupy that part of the hock which is constructed of the small bones at the inner aspect, in junction with the head of the inner splint bone and a portion of the inner surface of the head of the shank bone. Certain limits are allowed, but they are very restricted. A spavin may be placed somewhat forward; but to be true to the definition, it must implicate the bones which have been named

The term spavin is used, with qualifying words, to indicate enlargement in the joint structures of the hock, the result of synovial dropsy, which causes the protrusion of the capsular ligament in front of the hock articular surface; but this disease has nothing in common with true spavin.

It is a matter of dispute as to whether an enlargement in the bones of the outer side of the hock can be properly termed a spavin. As a matter of observation, we can affirm that such a deposit is not so called. The common expression, "a lump on the outside of the hock," is used often enough, but the term spavin never. Deposits on the outside of the hock are perhaps not so frequently seen as spavins are, but they are not so rare as some persons imagine; on the contrary, they may be looked upon as very common blemishes, seldom or never causing any inconvenience to the animal, and therefore attracting little attention unless they happen to have attained an unusual size.

In explanation of the more frequent development of bony tumors on the inside of the hock, it is suggested that the part is more directly under the centre of gravity, and thus more exposed to the influence of the animal's weight in progression. A more satisfactory reason, however, is to be found in the position of the bones in the inner surface of the joint, which permits greater freedom of motion, and renders that portion more liable to sprain and concussion during violent action. The influence of shoeing must not be lost sight of. It is our custom to alter the position of the hind foot entirely by elevating the heels, for the ostensible purpose of preventing the animal from slipping. How far we attain this object may be a matter of doubt; but there can be none as to the amount of mechanical derangement which calkins cause. The bearing of the articulation of the whole limb must to some extent be altered; and the hock, owing to its complex character, would suffer in proportion more than the other joints. If it be remarked that the influence of calkins is universal, while spavins are only occasional things, we can answer that a specimen of a perfectly healthy hock is not readily obtained; on the contrary, the anatomist is perfectly aware that he will be required to clean a good many hocks before he will obtain a set of bones perfectly free from ossific deposits, although the disease may not present the essential characters of the true bone spavin.

Conformation of the hock joint has probably something to do with liability to spavin; but, unfortunately, veterinarians and horsemen are not agreed among themselves as to the particular form of hock which is most likely to suffer. In fact, each observer bases his views on his own experience, and decides that the form of hock which he has seen most frequently affected with the disease is the objectionable one; and, as spavin occurs in all kinds of hocks, it is easy to understand the discrepancies of opinion which exist. Of two extreme errors in conformation, it is difficult to decide which is the worst—the very short, thick-set hock, or the long, thin, weak joint, which seems scarcely able to support the weight of the hind quarters. The short hock has the advantage on the score of strength, but is likely to be injuriously affected by concussion, while the long weak joint would most readily suffer from the effects of excessive flexion and extension. Thus, between sprain and concussion, there is not much to choose in the two forms of joint. Perfectly healthy and well shaped hocks are not exempt from liability to spavin; but they are much less commonly affected than either of the two imperfect forms which have been referred to.

Constitutional tendency is generally admitted as a cause of the prevalence of spavin; but the grounds of this belief are not very well defined. It is asserted, no doubt with truth, that the progeny of certain well-known horses, whose hocks were affected with spavins, have become the subject of the disease at an early age. The cases, however, are very few, and the evidence is rather traditional than practical. There is no doubt of the existence of a constitutional tendency to ossific deposits, and the fact of the existence of spavin is often taken as evidence of this tendency; therefore, a stallion afflicted with the disease is considered to be ineligible for stock purpose, although the presence of numerous splents and other exostoses would not be held to disqualify him as a stud horse. The fact really is that spavins are so much more serious affairs than splents; that their presence excites alarm, and the animal affected with them suffers in reputation in consequence. But it is quite possible that a stallion may possess a constitutional tendency to ossific disease, evidenced by the existence of exostoses in various parts of the limbs and body, while the hocks are free. Another may be affected with spavins as the result of severe use of the hock, although free from hereditary taint. It is hardly necessary to remark that the last animal would be the safest to breed from.

Technically, a spavin is always an unsoundness, no matter whether it interferes with the animal's action or not. This is one of the clearest points in veterinary jurisprudence. The only difficulty is the proof of the existence of the disease; and, rather oddly, there is no affection to which the horse is liable which is the cause of greater difference of opinion among professional men.—*Field.*

How to Administer a Ball to the Horse.

A common form in which medicine is given to the horse is by means of the ball, an oblong mass of rather soft consistence, yet tough enough to retain its shape, and wrapped up in thin paper for that purpose. The usual weight of the ball is from half an ounce to an ounce; but they may be given of a larger size, if they are longer but not wider. Every man owning or handling horses should know how to give a ball, which is managed either with or without a balling-iron, an instrument which is seldom wanted, and which sometimes occasions considerable mischief to the roof of the horse's mouth. Occasionally a horse cannot be managed by any other means; but, generally speaking, they are only an excuse for bad management. In giving a ball in the ordinary way, the horse's tongue is drawn out of his mouth on the off or right side, and held there firmly with the left hand grasping it as near the root as possible, but to a certain extent yielding to the movement of the horse's head. While the tongue is thus held, the ball is placed between the fingers and thumb of the right hand, extended in a wedge-like or conical form, so as to pass as far down the swallow as possible, and the hand in this form, with the arm bared to above the elbow, is carried over the root of the tongue till it feels the impediment caused by the contraction of the swallow, when the fingers leave the ball there, and the hand is withdrawn quickly yet smoothly, while at the same moment the tongue is released, and the head is held up till the ball is seen to pass down the gullet on the left side of the neck, after which the head may be released.

When the balling-iron is used, the oval ring of which it is composed is passed into the mouth, so as to keep it open, being first well guarded with tow or cloths wrapped round it. The handle is then held in the left hand, *together with the halter*, so as to steady the head, and yet to keep the horse from biting; and while thus held the hand can freely be passed over the tongue, and the ball deposited in the pharynx.

In the usual way the horse to be balled is turned round in his stall, which prevents his backing away; and if the man is not tall enough, he may stand upon a stable-bucket turned upside down. Balls should be recently made, as they soon spoil by keeping; not only losing their strength, but also becoming so hard as to be almost insoluble in the stomach, and frequently passing through the bowels nearly as they went into the mouth. When hard they are also liable to stick in the horse's gullet. If ammonia or any other strong stimulant is given in this way, the horse should not have his stomach quite empty, but should have a little gruel or water just before; for if this is put off till afterwards, the nauseous taste of the ball almost always prevents his drinking. When arsenic forms the principal ingredient of the ball, it should be given soon after the horse is fed; or a quart or two of gruel should be given instead just before the ball.—*Prairie Farmer.*

The Apiary.

The Sting of the Honey-Bee.

A painful rather than a pleasing interest attaches to the subject now proposed for discussion. Possibly this may account for the fact that so little is said about it. In most minds it awakens disagreeable memories, or unpleasant apprehensions. We incline to be mute on distressing themes. In looking over an apicultural library one is impressed with the idea that there is a sort of avoidance of this subject. You can readily find ample details concerning the honey sac, the pollen basket, the wax works, the wings, the eye, but marvellously little about the sting.

Kirby and Spence, in their excellent treatise on Entomology, devote a paragraph to "insects which attack man from revenge or fear," and remark: "These all belong to the Linnæan order *Hymenoptera*, and the tremendous arms with which they annoy us are two darts finer than a hair, furnished on their outer side with several barbs not visible to the naked eye, and each moving in the groove of a strong and often curved sheath, frequently mistaken for the sting, which, when the darts enter the flesh, usually inject a drop of subtle venom, furnished from a peculiar vessel in which it is secreted, into the wound, occasioning, especially if the darts be not extracted, a considerable tumor, accompanied by very acute pain. Many insects are thus armed, and have this power." Prominent among them are mentioned the ichneumon, the spider-wasp, the honey-bee, the wasp, and the hornet.

Mr. Quimby has just eight lines on this topic in his valuable work, entitled, "Mysteries of Bee-Keeping Explained." They are as follow:—"The sting of the bee, as it appears to the naked eye, is a tiny instrument of war, so small indeed, that its wound would pass unheeded by all the larger animals, were it not for the poison introduced at the same instant. It has been described as being composed of three parts, a sheath and two darts. Both the darts are furnished with small points or barbs like a fish hook, that hold it when thrust into the flesh, the bee being compelled to leave it behind."

The only full and scientific account of the bee's sting we have been fortunate enough to find is embodied in a communication to the *American Bee Journal* (Aug., 1870), by Mr. J. R. Bledsoe, of Natchez, Miss. Four cuts illustrate the appearance of the various parts of this warlike implement, as seen under a powerful microscope. One of them, which shows the point of the sting, is a truly formidable-looking object. Mr. Bledsoe was led to his microscopic examination from certain peculiarities of experience connected with a sting he received, and it is not surprising when one looks at the terrible pictures drawn by him, to find him saying, "I certainly dread bees more now than before my investigation." The pith of Mr. Bledsoe's interesting paper, partly condensed and partly quoted literally, is as follows:—He observed in extracting a sting from his person, that a portion of it remained in the wound, and that the part still fixed in the flesh was extremely fine in size, finer indeed than the portion removed, and fully as long. It also appeared to be a tube pulled out of the main sting, much in the manner of the working of a telescope. A microscopic view showed, however, that it was not a perfect tube, neither does it work with telescopic action. The bee's sting is a complex instrument, being composed of three distinct parts, of which the sheath forms one. These three parts join near the edges, and form a tube which, viewed sectionally, has the shape of a triangle, the angles being rounded off.

The sheath near its point is narrow, but grows wider towards its base, where it gradually embraces the remaining parts, thereby keeping them in place in their working. Near each edge of the inner or hollow side of the sheath, runs a ridge which fits a corresponding groove in each of the other parts. Near its point, which is rounded rather bluntly, it is armed with two feeble sets of barbs, numbering as many as four in each set. The base of the sting or sheath is large, being broad and somewhat flattened, with an oblong hollow, which constitutes a receptacle for the poison, just previous to injection into the wound.

The other two parts constitute the sting proper, and in a sectional view are semicircular, the upper edges being thicker than the lower ones, and squared to each other, one of the edges having a projection extending along the under or inner portion of it, thereby forming a rabbet, along which the opposite part freely moves. The under or inner edge of each of these parts tapers down to extreme thinness, while near the termination of the edge there runs a minute groove which corresponds with the ridge mentioned in the description of the sheath, and along which the parts move freely. Each of these parts proper tapers down to an exceedingly fine point. Near the point begin the barbs, which in some stings number as many as ten, extending along the sting nearly one-half its length, and are well-defined.

The parts are of a horny consistency, of a deep red color, and transparent; they are also hollow along the greater portion of their length, intended perhaps to combine lightness and strength.

The two chief parts of the base of the sting gradually assume a nearly round and tubular form, each terminating beyond the base of the sting within the body of the bee, and having an arm attached to it at right angles, which forms a part of the muscular mechanism by which their movement is effected.

Also, to each of the chief parts, and located in the cavity formed at the base of the sheath, is attached a plano-convex valve, the convexity of which is adapted to the inner side of this receptacle, and they occupy about one-half of the space therein. When the sting is in action, each of the chief parts is thrust out and withdrawn alternately; so that when working its way into a wound, the valves by their action force out the poison which fills the cavity, and which is received from a sac situated apart from the base of the sting. The poison readily passes along the tube, (which is a continuation of the cavity) and finds its way into the wound with great facility, owing to the peculiar formation of the sting.

It often happens that one or both of the chief parts of the sting are left in the wound, when the sheath is withdrawn. These being very minute are seldom perceived, the person stung congratulating himself at the same time that the sting has been extracted. Additional pain and swelling result from leaving any portion of the sting in the wound.

In common with all the doctors who prescribe for bee-stung patients, Mr. Bledsoe advises the immediate removal of the sting; but there is a touch of grim irony in the advice, when it is added, "it continues its working motion for several seconds after being torn from the body of the bee, and thereby buries itself so deep as generally to make it impossible to withdraw all of it."

The peculiarity just noticed probably accounts for the severity of the consequences resulting from bee stings in certain cases in which highly sensitive parts of the body are attacked, but in view of the fact that the extremely fine point of the sting is armed with a number of barbs, may it not be questioned whether anything but the outer sheath is ever got out of the wound inflicted by this instrument.

Leaving the scientific paper of Mr. Bledsoe, and indulging in some general remarks, the celerity and force with which the sting is propelled cannot fail to indicate a remarkable endowment. It has been styled a weapon of war, and such indeed it is, always ready and highly formidable. Is any other creature, in proportion to its size, as thoroughly equipped for martial purposes as the bee? It has been remarked that if man were as good a jumper, according to his size, as the flea, he could clear the dome of St. Paul's at a bound. In like manner, if he were armed proportionally as perfectly as the bee, he would be a terrible warrior indeed. The bee itself, if it had human depravity, would be an insect so intolerable, that, spite of the sweet honey it brings us, we should be compelled to go in for its extermination.

Fortunately, however, the bee is pacifically disposed. It is armed for the preservation of peace and not for the prosecution of war. The common idea seems to be that the bee resembles the devil, who goeth about seeking whom he may devour. But the foraging excursions of this industrious insect are for other purposes than to find victims to sting. The stings of a bee colony are undoubtedly meant to defend their stores, and if bees were as harmless as flies, very little honey would ever find its way to the market or the table. Hence the idea of sometime or other bringing apiculture to such perfection as to breed a race of stingless bees is as unwise as it is utopian.

The more practical branch of this subject, viz., the fear of being stung as a hindrance to bee-keeping, was fully discussed in these columns not very long since; and as its consideration would protract the present article to an immoderate length, it need not be touched upon at this time.

Superstitions about Bees.

To cure bee stings hundreds of remedies have been offered, some of them very old. Pliny says rue will cure stings of bees, hornets and wasps. He also declares that a tea made out of bees themselves will cure the sting when drank. Paulme and saurell, both leaf, bark and berry, he says will cure it. These may be good, but old Pliny goes still further. "For the sting of bees," he says, "the owlet is counted a sovereign thing, by a certain antipathy in nature. Moreover, as many as have about them the bill of a woodpecker when they take honey out of the hive, shall not be stung."

An almost universal superstition is that bees must not be sold. This superstition takes various forms in different localities. In Ireland an old saying reverses the rule: "Bees must not be given away, but sold; otherwise, the giver or taker will have no luck." In Devonshire, England, when bees are sold, payment is never made in money, but in corn, &c., and the bees are always moved on Good Friday. In portions of Pennsylvania it is believed that the seller must not be at home when the bees are taken away; if he is, the bees will not thrive.

A common superstition in England, France and Germany is that if the master of the house dies the bees must be immediately informed of it. In North Germany they say to the bees, "The master is dead, the master is dead." They believe the bees will die, fly away, or do no good unless so informed; and in portions of England the hives are dressed in mourning for the same reason. In Lithuania the bees are informed of death in the family by rattling the keys at the entrance. In Bradfield, England, bees are always invited to the funeral. A worse superstition still is that all the hives must be immediately removed to another stand on the death of a member of the family; and another, that at the moment the corpse is taken out of the house the hive must be turned over. They don't have movable frames or they could not do it.—*Correspondent Bee Journal.*

Whitening Beeswax.—In cool weather wax can be whitened in a little while in the sun by spreading it out in very thin cakes or layers. Take a very thin board or a clean shingle and wet it thoroughly, and dip it first in pure melted wax. It will adhere to the shingle in sufficient quantity thick as is necessary, and it will cool off almost instantly on being taken out of the melted wax. Now draw a knife along the melted edges, and you can readily cleave it off the shingle, and you have the thin layer of wax. Expose this to the sun on the snow or on the window sill, and it will become perfectly white, when it can be made up into cakes or any fancy form suitable for market, where it will command a much higher price than the yellow wax.

Miscellaneous.

A LITTLE Danbury darkey refused to go to church "kase he didn't want to look there like a huckleberry in a pan of milk."

"SEE THAT FIELD of waving wheat, nurtured by the sweat of the honest farmer's brow," said a prominent Wisconsin man in a speech at Richland lately. "Oh, cork up, old vermifuge!" sang out a Granger hearer, "that's an Osage orange hedge!"

RECEIPT FOR GLUE FOR READY USE.—To any quantity of glue use common whiskey instead of water. Put both together in a bottle, cork tight, and set it away for three or four days. It will then be fit for use without the application of heat. It will be found a useful and handy article in every household.

TO STUFF A HAM.—Parboil and place the ham on a tray; make incisions over it with a sharp knife, some two or three inches deep, and stuff these with a dressing made of crackers cooked to a brown crisp and crumbled fine; add salt, pepper, egg, butter, parsley, and onion chopped fine, then bake it brown in a moderate heat and serve when cold.

A TRAVELLER in Vermont, stopping at a hotel recently, ordered supper. The meal was a very inferior one, and at its conclusion, which was soon reached, he stepped up to settle for it. "Well," said Boniface, with alacrity, "I hope you had a good supper." "Yes," replied he, musingly, "the supper averaged first rate, the butter was strong, and the tea was weak."

AN ENGLISH COCKNEY let a house near London to a New Yorker on a seven years' lease, for £150 a year. When, after two or three years, the tenant wanted to move, he sub-let for the remainder of the term for £90 a year, the best price he could get. After the lease had expired, the New Yorker discovered that he had sub-let to his own landlord, and had thus paid the cockney £60 a year to live in his own house.

THE MOST remarkable instance of misplaced confidence is that of a New England farmer who hung an old coat upon a stake with two projecting arms, capping the affair with an old hat, and all for the purpose of frightening the birds from his fruit trees. When the "scarecrow" came to be examined, however, there was one bird's nest found in the hat and another in one of the pockets of the coat.

A WORTHY Scotch farmer was greatly exercised regarding the safety of his hay crop. The weather, though often threatening, favored his efforts till he succeeded in getting it safely gathered in—being in this respect more fortunate than several of his neighbors. After seeing the last wisp of straw tied round his stacks, he exclaimed with a self-satisfied air:—"Noo, sin' I hae gotten my hay a' safe in, I think the warld would be greatly the better o' a guid shower."

STAIR CARPETS.—To prevent the pile from separating at the edge of the stair and wearing off, pads are used. These are made of a low grade of cotton, covered with the cheapest muslin. A quilt or comfort that has seen service will answer the purpose of stair pads. In addition to increasing the lease of usefulness of the carpet, the pads prevent noisy clattering of feet, and in case the baby should fall down stairs the injury received would be materially lessened. When first laid down, the carpet should be several inches longer than is needed, that it may be disposed after each shaking so that a fresh place may come to all the edges. A wisp or small dusting broom is the best for sweeping stair carpets. After thorough sweeping, a wet cloth may be used to good advantage in removing all dust.

TO MAKE SHEEPSKIN MATS.—Wash while fresh in strong soapsuds, first picking from the wool all the dirt that will come out. A little kerosene, a tablespoonful to three gallons of water, will aid in removing the impurities. Continue to wash the skin in fresh suds till it is white and clean. Then dissolve a half pound each of salt and alum in three pints of boiling water, put it into water enough to cover the skin, which should soak in the solution twelve hours, and then be hung on a line to drain. When nearly dry, nail it wool-side in on a board, or the side of a barn, to dry. Rub into the skin an ounce each of pulverized alum and saltpetre, and if the skin is very large, double the quantity. Rub for an hour or two. Fold the skin sides together, and lay the mat away for three days, rubbing it every day, or till perfectly dry. Then with a blunt knife clear the skin of impurities, rub it with pumice or rotten stone, trim it into shape, and you have a door mat that will last a lifetime.

Advertisements.

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