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The Field.

Depth of Grain Sowing.

Notwithstanding all that has been said and written on this subject, farmers are apt to give it but little attention, yet it has much to do with the success of crops.

In a state of nature, seeds are dropped on the surface of the ground. But nature is profuse in providing for reproduction both of animal and vegetable life. Wild seeds are intended for the sustenance of wild animals; and while picking up and devouring the larger portion of the yield, a small quantity is pressed into the soil, there to germinate. To follow nature in this respect, is to tempt birds and other creatures to the grain field, and in this case, the sowing must be on the liberal system set forth in the ditty on corn planting—

Two for the woodchuck,
Two for the crow,
Two for the cut worm,
And two left to grow.

Seed must be covered when fields are to be cropped. But how deep, is the question. Careful experiments have settled this point. It has been ascertained that wheat must not be covered more than two inches at most, and an inch and a half is better than two inches. Seed sown to the depth of one inch germinated and appeared above ground in twelve days, while that sown two inches deep took eighteen, and only seven-eighths of it came up then. Some thing depends on the kind of soil. In a stiff loam or clay, an inch is plenty, while in a light sand, two inches would not be too much.

The importance of sowing at a uniform depth, has led to the use of the drill. Broadcast sowing and harrowing deposits and covers grain unevenly. Here it is too thick, and there too thin. Here it is a-top, and there it is buried too deeply for germination. With the drill these inequalities are avoided, and uniformity both of distribution and depth secured. The drill has other advantages. It effects a great saving of labor and seed. It leaves the soil mellowed up after the horses have passed over it. Besides all this, in drilling the driver rides, while in harrowing he walks, a most important difference. With the drill, the work is done far better and far easier than on the old fashioned plan. It is therefore wise economy to purchase and use this implement. In a very short time it pays the first cost, and is always a source of satisfaction in its method of performing most important branch of farm work.

After Harvest Leisure.

The Ohio Farmer of August 15th speaks rather generally of the period just after haying and harvesting as a time when farmers begin to breathe more freely and obtain a little leisure. It says:—"There

is no warm month of the year that furnishes us so much time for rest and recreation as August, and if there is any class of men that know how to appreciate a little leisure time after the long, hot days of July, it is the farmer." There is a short interval of comparative slackness just after the small grains are gathered in, but it can hardly be called a "leisure time." Threshing demands attention, and the fall wheat ready, meadows require to be mowed, and grass seeds sown; composting, and a variety of things are clamorous for attention until the stock is housed. Even when leisure can be calculated on. Yet even amid all this press of business, nothing is lost by taking an odd day now and again for recreation. A visit among friends, a picnic, a fishing excursion, a holiday of some kind, will do both the old folks and the young, as a world of good. They will feel enlivened; will work more cheerfully, and with less wear and tear to the machinery of life; new ideas will be obtained which will interest the mind while the hands are busily engaged in the routine of daily toil; and so labor will be lightened and sweetened. However numerous may be the things there are to do, all work and no play tends to dullness, not only with the boy, "Jack," but with the father, mother, and entire family.

Fall or Spring Manuring.

It is one of the peculiarities of agriculture that nothing is settled. It is full of vexed questions. Its processes are subject to so many varying conditions that scarcely any two effects are similar. Thus we have the unsettled questions as to draining, ploughing, manuring, and sowing, all of them problems of the first importance, but yet impossible of solution by any fixed rule. The practice of farming, therefore, is one that cannot be learned solely by experience on the one hand, or by theory on the other. Both are needed to make an accomplished farmer. The solely practical but unlearned farmer cannot adapt his experience to changed circumstances without falling into error and fatal mistakes. It is this sort of farmer who obstinately insists that because he farms a heavy clay soil that holds water and needs draining, draining is a necessity for every kind of soil and for all places. It also holds that because he farms a rich, warm, thin soil, resting upon an infertile subsoil, that deep ploughing is a useless and destructive practice; just as under opposite circumstances, he holds the shallow ploughing to be a heresy and a folly. Just so, too, in regard to manuring. There are those who believe in top-dressing only; others believe in fall manuring, and ploughing under the manure; others, again, believe in spreading fresh manure, and others in composting and decomposing it thoroughly before it is applied to the soil. The advantage of education is chiefly that it

enables a person to adapt his plans and methods to whatever circumstances he may be placed in. The educated farmer is one who thoroughly understands the principles upon which his art is founded—the science of agriculture, in fact—and has sufficient practical experience to apply his knowledge infallibly to the condition or character of the soil he has to work and to the other accidental circumstances of his position.

There is no question which interests the farmer more than the proper methods of using manure. At this season, when he is busy preparing to sow his wheat, or is looking forward toward his next year's corn or root crop, it is a very reasonable subject for consideration.

The principles which should guide the farmer in the use of manure may be epitomized as follows: First—Plants absorb their nutriment by means of the surfaces of their roots; not, as has been supposed by some, by means of spongioles at the end of the rootlets, but by means of the delicate skin or surface of the newer portions of the roots, or by means of microscopic filaments called "root-hairs," which spring from the tender surfaces of the fibrous roots. Second—The medium in which the roots grow has a great influence upon their extension. In fertile soil they are numerous and branched and spread thickly in every direction, and are abundantly furnished with the machinery for absorption of nutriment. On the contrary, in fertile soil the roots are few, attenuated, and are sparsely supplied with fibrous rootlets. Third—We cannot form any adequate idea of the quantity of roots possessed by a plant by roughly tearing it from the soil. If we wish to discover the whole mass of the roots of a plant, it must be done by carefully washing away the earth from the plant by means of a stream of water. Then we may find that in a rich soil the roots in a field of wheat, peas, corn, or clover will form a nest of fibres, which fill the ground to a depth of three or four feet, or more—that down to seven or nine feet in depth in a suitable soil. Fourth—It is upon the abundance of roots that the growth of the plant above the surface depends. Fifth—Plants absorb nothing that is not soluble in water, nor do they absorb anything at all except by their roots, nor except it is in the state of a watery solution. Sixth—Before any organic matter can become food for plants it must be decomposed. Thus, we cannot feed a starch-producing plant upon starch, nor an albuminous plant upon albumen; but when starch is decomposed into its original carbon, and albumen into its original nitrogen, then and then only can plants feed upon those substances. Seventh—The fertilizing matter existing in the soil must be in a state of fine division and be intimately mixed with the soil to be readily reached by the roots of plants. We might enlarge this recapitulation greatly, but there is enough for our present purpose. From the consideration of the foregoing we conclude that the manure should be applied before the crop is sown or planted; that it should be in a thoroughly decomposed condition, or at least should be put into the soil in such a condition and at such a period that it shall be decomposed by the time it is needed for the nourishment of the young plant; that it should be spread upon the surface, and should be mixed with the soil as intimately as possible by means of the plough and the harrow; that it should be kept as near the surface as possible, and to do this it should be covered by a first ploughing, and then by means of a second ploughing across the first one it should be brought to the surface again and mingled with the soil, the ultimate and complete intermingling being done by harrowing.

In our own practice, for many years, we have adhered to a method as nearly consistent with these principles as possible. There have been occasions when this was not possible, and we have endeavored to meet the needs of the case by top-dressing our wheat crop afterward. We must confess that it has been only when we have spread well-rotted manure upon the oat stubble, or in some cases upon the clover stubble after a crop of clover-seed, and have ploughed it in with a moderate furrow never more than four or five inches, and have cross ploughed and harrowed before sowing, that we have reaped our best crops. Top-dressing has been a failure in our experience, and the early starvation of the plants has never been remedied by this expedient.

For spring planting, whether for corn, potatoes, or turnips, it has been abundantly shown that no certain rule can be laid down. It depends greatly upon the character of the soil whether it is best to manure in the fall or the spring. Few farmers have any choice in this. It is the manure made in the winter that goes to make the spring crops. But we have found upon clay soils, which are retentive of manure, that it will pay to spread it as it is made, whether before the snow has fallen and covered the ground, or afterward. For early potatoes, or for garden crops, we have found it greatly the best to spread the manure in the fall and cover with the plough, leaving the land rough until spring, when the cultivator will quickly level the ground and mingle the manure with it. For later planted crops, manure spread as made during the fall and winter, even upon the snow, and left until the usual time for ploughing in the spring, has been the most effective with us. But upon lighter soils we have not found it advisable to spread manure for spring crops until a short time previous to ploughing for them. The only exception to this rule as to light soils, has been in the case of a clover sod which is to be ploughed for corn in the spring. Then the earliest application of manure possible produces a heavy growth of clover to be ploughed under, and a clover sod is the best fertilizer for corn that we know of.—*N. Y. Times*

Small Farms.

The reaction against the once dominant belief in the superior advantages of large farms over small is rapidly gaining ground. The large holdings are losing ground in a double sense. The French Revolution established the principle of peasant proprietorship so firmly in France that neither Bonaparte nor Bourbon has dared to disturb it. The principle has lately obtained some scant recognition in Germany. In Italy the vast estates of the Church have been sold under the hammer in many small lots, although each foot of ex-eclesiastical property is weighted with the Papal curse upon the purchaser.

In England the land question is a great one. John Stuart Mill was an earnest advocate of small farms. He traced the extinction of the English yeomanry, whose cloth-yard arrows won Cressy and Agincourt, to the absorption of small holdings by large. Many pages of his "Political Economy" are devoted to a reasoned eulogy of the peasant proprietorship of France. His praises have lately been justified by the enormous investments made by the peasantry, who hold half the soil of France, in M. Thiers' national loans. The corresponding class in England—so far as there is such a class—has not a penny in the funds. The strike of agricultural laborers has turned English opinion to this question again. Mr. W. T. Thornton has taken advantage of the fact to re-issue his "Plea for Peasant Proprietorship," first published in 1843. It is a strong plea.

Mr. Thornton shows by statistics that small farms yield better crops to the acre than large ones. This, indeed, is a dictate of common sense. The smaller the farm the greater care exerted upon it. Turner said he mixed his colors with brains, and therefore produced great paintings. The rule holds good with potatoes as well as with pictures. The average yield of an English wheat field is 26½ bushels. In the Channel Islands, which have a light soil ill adapted for wheat, but which have small farms, the average products from 32 to 40 bushels.

The soil of Flanders was originally a coarse, silicious sand, particularly unsuitable for wheat. Nevertheless, the average product is 85 bushels. The small farms of Flanders yield 41 to 60 bushels of barley to the acre. The large farms of England yield from 43 to 36. Rome was once a prosperous agricultural centre. The people were "divorced from the soil," and Rome became "a vast paper warren." England has changed her yeomanry into paupers. All her poor could be maintained by agriculture, if the land were only to be got. On the other hand, in France, according to *The Spectator*, "in many parts of the country pauperism is almost unknown."

The habits of thrift inculcated by land owning have checked the reckless multiplication of families. Conservatism runs with land. The peasantry of France is the one anti-revolutionary element in the country. The system promotes avarice, but it is better for the poor to be misers than spendthrifts.

The proposal to allot an acre or two to each agricultural laborer at a fair rent, and allow him finally to buy the allotment at a fair price, has not been well received by English land owners. One of the Queen's Counsel, Mr. Rodwell, has denounced it as "the rankest possible communism." This is a curious thing for a man who lives within twelve hours of Paris to say. A very few land owners have put this frightfully communistic theory into practice. Lord Spencer has started his laborers with an acre a piece.

It is worth while for American farmers to consider whether they have not too much land on their hands. Too many of them have accumulated acres and mortgages together. By abandoning the foolish attempt to outstrip each other in acreage, and by concentrating their work on comparatively small areas, they might make more money in the end. If they cannot sell their surplus land, they might lease it to their present employes, and so aid others while aiding themselves. If they can get as much wheat from 76 acres as they can get now from 125, why should they carry the dead weight of the extra 50?—*Chicago Tribune*.

Fertilizers for Wheat.

No doubt many farmers are just now endeavoring to make up their minds what to use as a manure for wheat. Some have used their yard manure for corn and need something for the wheat, and others have used their yard manure for the wheat, but have not enough to cover the whole field, and are compelled to finish out with something else. To the latter class, my advice would have been to spread the yard manure all over the field and then follow it up by a light dressing of some kind of fertilizer all over the manure. To both classes the question arises, "Which will be the best for the amount of money expended?" For several years I have been experimenting with compounds of my own mixing, and have, in my own opinion, attained to a moderate degree of success. The past season I have demonstrated the action of the following mixture: Bone-dust, 3,000 lbs.; sulphate of potash, 1,000; sulphate of soda, 1,000; gypsum, 1,000. With a common watering pot dampen (not too wet) the bone, and thoroughly mix the soda and potash with it; let this be done for five or six weeks before the mixture is needed, and have the pile shoveled over at least once each week; just before applying add the plaster; the caustic soda and potash will divide the particles of bone, and although I have no right to claim any chemical change, yet I have found the mixture not only cheap but also effective.—*Cor. Country Gentleman*.

GRAIN PITS. Do not forget to clean out granaries before putting in grain. Look out for mouse and rat holes, and secure all thoroughly from future depredations. A dollar expended now may save fifty.—*Ohio Farmer*.

DRAINING. Many places too wet at other seasons can now be drained without trouble. Sink ditches from two and a half to three feet deep, and make the drains of loose stone. Tiles, of course, are preferable where they can be had at moderate cost.—*Ohio Farmer*.

POOR FARMERS realize the value of soil as a manure. From experiments recently made by Prof. Kelsie, of Michigan Agricultural College, it was shown that there are more than a hundred tons of vegetable matter to the acre of heavy greenward.—*Ohio Farmer*.

WHEATS. These are rapidly ripening now under hot suns, and unless destroyed soon, will deposit their crop of seed to cause future trouble. In open spaces mow them down with the machine. Clean out the fence corners with a brush scythe. Nothing makes a farm look better than clean fence corners, and vice versa.—*Ohio Farmer*.

PROPAGATION OF POTATOES BY CUTTINGS. Potatoes of large size are said to be produced by a monk in France by cutting two side-shoots from each stalk when it is five to seven inches high, and setting them in good, rich, mellow garden soil. In a few days they send out roots, and form tubers about as early and in as large quantities as the original stalk, while the latter does not seem to be injured by the moderate pruning. The experiment also seems to have been successfully tried elsewhere previously. The plan may be found especially serviceable for the propagation of new and rare varieties for seed.

FRANCE has produced a new potato, which is creating considerable excitement as being far superior to any other kind. It is called Rein Blanche or White Queen. It is early, large, rich and mealy, and will probably reach us soon in small packages at high prices.

GRAIN WREATHS. Barns are not readily freed from weevils on account of the difficulty of reaching all their hiding places. But granaries are more easily rid of them. The walls and floors should be washed with boiling water or potash lye, and every crack thoroughly explored with a stiff broom dipped in it. Then the walls should be whitewashed with a thick coat, put on while hot. The windows should be covered with fine wire gauze to keep out all insects.

AN INTERESTING AGRICULTURAL EXPERIMENT.—Agricultural readers will be interested in the result of the thirteenth year of an experiment in continuous corn growing upon a Hertfordshire farm. Mr. John Prouth, of Sawbridgeworth, has just sold his annual crop—straw, hay, grain, and all—to be taken off the farm, at the following extraordinary rates:—324 acres of wheat, at an average of £10 17s. 7d. per acre; 60 acres of oats, at the rate of £9 15s. per acre; and 45 acres of clover, at £10 8s. per acre. There are, we believe, only three or four farms in England on which an attempt is made to grow corn on the same soil year by year, and it is important to note that Mr. Prouth has succeeded by means of steady cultivation and artificial manures in producing crops which are probably about the finest and most profitable in England, and that the farm under this system is said to have increased in value by more than 30 per cent.

EXTRAORDINARY YIELD.—As an evidence of the extraordinary productiveness of mountain soil, under intelligent cultivation, we state that Mr. Burwell, of Piddletown, in this county, in the spring of 1873, planted the fifty-seventh part of an acre in his garden in onions, and gave them the same attention he did to other vegetables growing near by. From this small piece of ground Mr. B. gathered 1,540 pounds of onions, but few of them weighing less than one pound each. The crop was sold on the premises at 2½ cents per pound, being at the rate of \$2,194.50 per acre. The ground producing this extraordinary crop had nothing peculiar about it to distinguish it from any other soil in the vicinity, and, improbable as this statement may seem, yet its truth can be verified for by every resident of Piddletown.—*Ancador (Cal.) Ledger*.

EXCELLENT MANURE FOR TURNIPS.—A correspondent of the *Louisiana Times* writes from Alexandria:—"The other day, at Sakhara, I saw nine camels pacing down from the mummy pits to the bank of the river, laden with nets, in which were femora, tibia and other bony bits of the human form, some two hundred weight in each net on each side of the camel. Among the pits there were people busily engaged in searching out, sifting and sorting the bones which almost crust the ground. On inquiry I learned that the cargoes with which the camels were laden would be sent down to Alexandria, and thence be shipped to English manure manufacturers. They make excellent manure, I am told, particularly for Swedes and other turnips. The trade is brisk, and has been going on for years, and may go on for many more. It is a strange fate to preserve one's skeleton for thousands of years in order that there may be the fine Southdowns and Cheviots in a distant land! But Egypt was always a place of wonders."

POOR FARMING.—It is supposed that every man, be he farmer, mechanic, or merchant, conducts his business for at least a two fold purpose; first, to gain a comfortable living and surround himself with conveniences; and second, to lay up a competence for the future. We do not expect much of a mechanic whose tools are never in order, nor yet of the merchant who has little or nothing to sell. No more need we expect much of those farmers whose fences are down or overgrown with bushes; whose corn fields are grassy and unattended, who attempt more than they can do well, whose barns are open, and too soon empty; whose stock for the want of sheds and stalls have no protection except such as is afforded by the straw stack or barn, whose machinery rusts and rots in the winter storm, and who without thought seem to drift along, doing only that which seems to call loudest for their immediate attention. Year after year the same fields are taxed to produce the same crops until the life is worn out of them. Such men should consider themselves fortunate if their faithful farm afford them even a scanty living. Is this picture overdrawn? Cannot the reader recall the name of some farmer who is almost equally bad? In farming, as in any other branch of industry, success is insured only by constant care and intelligent forethought.—*Ex. Cor.*

Grasses and Forage Plants.

Forage in Drought.

From Kingston westward we have had the usual summer drought, so trying to stock of all kinds, but especially to milk cows. In some places the pastures have been completely burned up, losing all tinge of green. The county of Wellington has suffered to a greater extent than usual. In the vicinity of Guelph the commons have worn a yellowish, rusty look, and the short, withered grass has cracked and rustled under foot, so crisp had it become with the combined action of heat and drought.

And yet, though this condition of things has become periodical if not chronic, the mass of our farmers make no provision against it, and are annually taken short, and astonished that their fields yield no forage. Are they ignorant of the fact that nature has provided a plant well suited to this climate, and exactly adapted to carry the herds through the emergency created by the dry season? Have they never heard of the high merits of Indian corn as a summer forage crop? Able to hold its own, and to flourish when other forage plants wilt down and die, full of succulent juices, yielding enormously to the acre, what more or better could be desired as a resource when all other green things fail? It is, we fear, less ignorance than prejudice which deters multitudes from the cultivation of this valuable crop. Farmers in the Old Country never grew it. Moreover, it is a Yankee affair. Not a few who have got over all prejudice against "Yankee notions," in the shape of reapers and mowers, hoes and hay rakes, still stand in their own light as to the valuable product under consideration. We have travelled for miles and miles the present summer through districts utterly parched with drought, without seeing a single acre, half or quarter acre of green corn waving its dignified defiance to the brazen sky and the burning sun. Now that the effects of the hard "dry spell" are fresh in memory, is a good time for us to urge and for our readers to feel the importance of having a patch of corn another year. We beg every farmer to try it, even on ever so small a scale. Choose a bit of the richest land on the farm. Sow it broadcast, after danger of spring frost is over, or, still better, drill it with Indian corn of the horse-tooth variety. Then when in August next the pastures are dry and withered, the milk-pail deficient, and the cattle hollow sided, fancy what a treasure a corn-patch covered eight or ten feet high with sweet, rich, juicy feed will be. This forage crop is easily raised. It wants no attention. The dense shade it makes will smother down all weeds. It draws largely on the atmosphere for sustenance, and therefore does not impoverish the land, which it leaves moist and mellow, fit for any subsequent tillage and succeeding crop. We say to all, do not let another drought catch you without a good plot of green corn in reserve for such a time of need as has just been experienced.

Top-dressing of Grass Lands.

A correspondent of the *Maine Farmer* improves a rainy day, during haying, by communicating to his brother farmers his views on the above subject. They are practical, common sense, and timely. He says: "To consider the subject properly and in all its varied relations, would require a longer experience and a closer observation than has been accorded to us, but what little we have shall be given freely, though in an article like this there is not room for any extended remarks."

Leached Ashes

We have used this fertilizer largely, but mostly on tillage land when seeding down to grass. They are of inestimable value to the farmer, and not a bushel should be allowed to go out of the State. Use from

150 to 300 bushels to the acre, according to condition of soil, and the catch of grass-seed—whether on low or up-land—will exceed that obtained in any other way and every dollar invested will come back in the grain and first hay crop; after that the extra result will be clear gain; as the effects of the application will last from six to eight years. Applied as a top-dressing, leached ashes are highly beneficial, but land should not be too much run out, if it produce only 500 pounds of hay, plough rather than top-dress; if it produce one ton of hay to the acre, apply 200 bushels of ashes, and in two years you will cut two tons of hay under ordinary circumstances. Whether it will pay or not will depend somewhat on the price of the ashes, the distance to be drawn, or any other fertilizer of equal value being obtained cheaper.

Barn-yard Manure

There is no doubt of its value; only conditions and modes of application are matters of discussion, and these—notwithstanding all that has been said and written—are still unsettled questions. But there is not the shadow of a doubt, that well rotted and very fine barn-yard manure is the best for top-dressing early in the fall—say September, or, earlier still, in August, the last summer month. But if put on late in the fall, then coarse, straw manure is the best, because there is less loss from washing. Although we prefer well-rotted and fine manure, yet when we have come to consider the length of time to wait and the increased cost of bringing our manure to the proper fine condition, we have generally—Yankee-like—used it in its coarse and half-rotted state. Still even in this way it pays, especially if the brush harrow be drawn over it, and a little grass seed sown. We have generally used from ten to fifteen ox loads to the acre. We have sometimes used a compost of muck, lime, ashes and manure, to great advantage. We top-dressed last fall—in September—over three acres with the above mixture, and we shall cut this year more than double the amount of hay we did last year on the same ground, and it was pretty good then.

We top-dressed last fall and this spring about eight acres, and to all appearance we shall cut from eight to ten tons of hay more than last year on the same land. Included in this were three acres of orcharding, mostly old trees, and I notice that the trees are looking very much better, greener and healthier, and it makes the grass grow under them too; so often in more ways than one top-dressing will pay.

Mixed Grasses for Pastures.

The value of a meadow consists in the amount of hay it will produce. Therefore, since it must be cut and cured to be available, it should be sown to such grasses as will ripen at a given time or nearly so. With pastures the case is different. The greater number of good grasses you can get into the pasture the more valuable it will be, and it is not necessary that they mature at, or nearly at, the same time, the pasture will be better if they do not, for this succession will give more feed than if there was a flush of grass during one portion of the season and a scarcity at other times.

If there were such a variety sown as to give a constant succession of growth, the pasture would be always green, where there was sufficient to support growth. This is not always the case in the United States, and especially in the west. Our annual droughts in July and August are terribly severe on both meadows and pastures. Nevertheless, we believe it will be possible, with care in the selection of proper grasses for sowing, to have pastures, if not of English greenness, at least such as will compare measurably, ere long, except for about a month in the heat of summer.

As showing the great value of mixed grasses for pasture it will not be out of place, although this has been heretofore discussed in the *Western Rural*, to note the fact that a single square foot of very rich natural pasture in England has contained 1,000 plants, 940 of them being natural grasses, and sixty of them clover and other plants, the whole number including twenty varieties. Another meadow, irrigated and otherwise carefully managed, contained, in a square foot of soil, 1,702 plants of natural grasses, and ninety-six of clover and other plants.

Again, as showing the necessity of thick seeding, a mixture of twelve varieties of grass, aggregating forty pounds per acre, gave, according to that on "Grasses and Forage Plants," the enormous number of 51,900,000 seeds, or about nine per square inch. Consequently, to produce the number of plants given in the case where 1,798 plants were found per square foot, we should be obliged to sow about twenty-five per cent. more than forty pounds per acre. From this, it is safe to say, first, we sow too

little seed for permanent pasture, and also, as a rule, we sow too few varieties.

The following is a list of grasses that it would be well to experiment with for permanent pasture in the west, which we give in the order of their ripening, and with the number of pounds per acre to be sown in the mixture. They are: Sweet-scented vernal grass, one pound; orchard grass, seven pounds; meadow foxtail, two pounds; meadow fescue, three pounds; Kentucky blue grass, five pounds; redtop, four pounds; Italian rye grass, three pounds; timothy, six pounds; red clover, six pounds; white clover, three pounds. This would give forty pounds per acre, and the principal grasses sown are those known to do well in the west. If the object be to produce a thick matted sward as quickly as possible, the red clover may be omitted, although it is probable that this grass would soon be crowded out in any event, and the pasture would eventually consist of those grasses most suitable to the soil and climate.

If the pasture be much shaded with trees, blue grass, orchard grass, rough-stalked, and wood meadow grass and white clover should predominate. If the pasture be quite moist, timothy, redtop, foul meadow, meadow fescue, and white clover should predominate, with perhaps some alsike clover. Whatever the kinds sown if a first-class pasture is intended, so soon as the sod gets firm enough to bear the tramping of hoofs, it should be closely fed and kept rich, but never allowed to be tramped when in a soft and muddy state, as is the case early in spring and sometimes after long continued rains.

Lucerne.

A correspondent of the *Country Gentleman* writes that journal as follows:—

"Please tell me through your valuable paper all that you can about lucerne—where the seed is to be obtained, price per bushel, how much to the acre should be sown, if likely to make a crop in this state, the best soil, etc. The accounts I have read make me anxious for the truth. If they are true, it must be a most valuable crop for hay."

Our contemporary replies:—

"The seed may be obtained of B. K. Bliss & Son, of New York city, and at other large seed stores, at about 60¢ per lb. About 15 lbs are needed for an acre. It requires a dry, deep and rich soil, and good cultivation till established. Under ordinary management and with common soils it is not very successful, but with suitable soils and management, it gives heavy and profitable crops. We cannot recommend it for general culture, but it is well worthy of limited trial in different localities."

A MAN in Stark county, Ind., pays his boy ten cents a quart for potato bugs, and the boy says that if next year is as good as this he can buy the old man out.

SMALL STONES IN THE MOWINGS.—It is an excellent practice to go over the mowing fields just after haying and pick up and carry off loose, small stones, which may have been startled by the tedder or horse-rake. A few hours time spent in this way some cloudy day, will afford the satisfaction of knowing that there will be nothing in the way of the mowing machine knives when a second crop of rowen is ready to cut, or when the machine comes around next year. Besides it may save expensive breakages and serious delays while the duplicate parts are being sent from long distances. Mowing machines always seem to break just when they are most wanted. Small fast stones that are too small to be seen in thick grass, may often be knocked out of the way or have their top broken off by a heavy sledge hammer. It will pay to try it.—*N. E. Farmer.*

HUNGARIAN GRASS.—It wants rich soil; it should not be sown before the first of June, it may be sown as late as the 20th. One bushel of seed is none too much to smother weeds and make fine hay, it should be cut before all is in bloom; cut when the dew is off, and tend well and rick it, as any wetting hurts it much more than any other hay. It is not hard to cure, but if heavy, needs two days' sun. Mow and feed as other hay, and for milk cows or horses it is as good as the best. If cut late it is hard fodder; if sowed thin it is coarse fodder. I have raised two tons to the acre on plain land, by applying 400 pounds of Peruvian guano harrowed in before the seed was sown. It is good when one wishes to add to the mow a few tons of hay more than their land in grass will yield. Cows can be raised on night soils cheaper, but it cannot be raised as it by mages in a few weeks. I think it better than corn stover.—*Cor. N. E. Homestead.*

Agricultural Implements.

New Side-hill Plough

We presume that a recent invention in ploughs will in time almost completely revolutionize these important implements of husbandry. Of course, every farmer knows that in the ordinary plough the mouldboard and coulter are fixed, i.e., the soil is invariably turned over by them to the right. They are so adjusted, and hence it is that no sooner is the end of a furrow reached than the team, plough and ploughman have to move across the end of the "land" to the next starting point, when they proceed again, always ploughing to the right. Now, if the time lost per day in this operation of crossing alone were duly calculated, we doubt not the sum total would be astonishing. We question much if ever it has been computed, because the crossing has always been accepted as a matter of course, but, as we have said, we believe it would add up to several hours in the day. In side-hill ploughing, again, where it is impossible to turn the soil upwards against the rise and where ploughing must consequently be done all one way, the time consumed will be found to be somewhat better than one-half.

The new side-hill plough, then, we look upon as a most decided improvement, and one which must meet with the extensive encouragement which it merits. It is in all respects an ordinary plough, but with movable coulter and a swing mouldboard. The cutter can be readily changed from one side of the beam to the other, where, by a simple contrivance, it is secured in its position as soon as entered. The mouldboard again swings by a swivel on the beam, and is fastened in its position by a lock-clasp underneath, near the union of the beam and handle, and sufficiently high to escape interference from lumps, stones or other obstacles in the soil over which it is passing.

The process of working is as follows:—Having reached the end of the furrow the ploughman turns his team round, then, by raising the handles slightly and touching with his foot a short iron lever that juts up between the handles near the beam, the lock is unclamped and the mouldboard swings. A dexterous jerk of the handles then sways the mouldboard over to the opposite side, which it no sooner reaches than it immediately claps itself again. The coulter is next changed from one side of the beam to the other—the work altogether of about half a minute—when he can proceed on his way. In this manner, of course, double work is performed in the same time, as compared with that of the ordinary plough. The side-hill plough is but a recent invention. We have seen as yet but one of them in Canada, but judging from the demand made on the part of every one who saw it, we look for its very extensive use almost immediately.

New Patent Corn or Bean Cracker.

It is well known that neither solid roller mills nor mill stones will split beans or corn unless they are in good condition, on account of their sticky nature when damp. A stone or other foreign substance passing into a solid roller will generally damage the rollers, which are costly and difficult to repair.

There is a new machine to be had now from some of our leading manufacturers, in which these defects are very much if not wholly remedied. The barrel or cutting roller is hollow, and is formed by a number of separate, triangular steel cutters, arranged around the circumference of two end-runs, and so set that there is more clearance at the back than at the cutting edge, therefore the mill can never choke, no matter what may be the size or condition of the grain to be cracked or crushed. Each tooth has three separate cutting edges, which can be successively used, and

when all are worn out they may be easily replaced with new teeth by an ordinary laborer at a very small cost, viz., between \$1 75 and \$2 00 for a complete set. The extent to which the grain is crushed is governed by a screw, and care must be taken not to set the cutting plate so close that it touches the barrel. They not only split damp beans and corn perfectly, but also dry ones with less dust and less power than can be done by stones.

A Self-Binding Harvester.

Mr. James Gordon of Rochester has succeeded in inventing a self-binding harvester, which will no doubt be of immense advantage to farmers. The machine was tested in several fields of grain near St. John's last week, and gave entire satisfaction to a large number of practical gentlemen who were present. The *Free Press* gives the following particulars as to the binder:

The reaper and mower is not different in its construction from any of the other best machines of this class, only, while they cut a swath of from 5 to 6 feet, this one cuts from 6 to 6½ feet, and may if necessary be extended to 7 feet; but the great invention consists in binding each sheaf as neatly and throwing it off as orderly as if done by hand. The binder is rounded very similar to a hand sickle, and supplied with wire from a pulley attached, and works so ingeniously that as soon as there is grain enough in front of it to form a sheaf, the binder comes right down, presses the whole together, placing the wire round the bundle tight, gives it a twist and cuts the wire, completing its work with a rapidity truly astonishing; the following sheaf turning the previous one off to make room for itself. The advantages of this machine are the great saving of manual labor, and the cleanness and neatness of the work done. This machine cuts and binds from 15 to 20 acres per day, or 30 acres if required; and as it takes five extra hands for every ten acres to bind after the ordinary reaping and mowing machine, there is a saving of ten hands for every day's work, supposing the machine to cut twenty acres per day. Then, the difficulty of getting sufficient hands just at the very season they are wanted, and as much grain is often more or less injured by wasting, the advantage can easily be conceived. The extra cost of this machine is from one hundred to one hundred and ten dollars over the reaper and mower, but this extra amount would soon be saved on a large farm by its use. In regard to expense of wire, three pounds would bind up the grain of twenty acres, and as the cost is about ten cents per pound, the whole would cost thirty cents, which is more than saved otherwise by the cleaner manner in which the grain is taken up.

Hauling Manure with Two Waggons.

There is an important gain in busy seasons of the year (and when is it not busy on the farm?) in having two and even three men with two waggons to every team when hauling manure from the barnyard. I am always provoked when I see one man loading a waggon, drawing it a quarter or half mile, unloading it and returning. In this way one man with team may haul eight or ten loads a day. Add another man and you increase the number of loads to fourteen or fifteen. The true way is to get two waggons, take off the boxes and have wide boards for the bottom and sides. Two men load one while one is driving to the field and unloading in heaps from the sides of the waggon, with a common potato hook clawing it down from the top. After one or two heaps are made, one of the bottom boards is turned over, the waggon is drawn a few steps further, and the whole is dumped. In this way thirty or even more loads can be drawn per day, where the pitching is good and the distance not too great. The manure is not spread, but this can be done at leisure and without stopping the team from the plough. Two men will fill a waggon with coarse manure in from fourteen to twenty minutes, according to the situation. For cleaning out a large accumulation in the barnyard I know of no better way than this. The horses are not unhitched from the whiffletrees, but these are shifted from one waggon to the other with each load. One of the pitchers usually assists in this operation, and after a few trials it is only the work of a moment.—*Rural New Yorker*

Two different reaping machines, with automatic sheaf-binding attachments, have been tried in the harvest fields this season with apparent success.

Steam Cultivation

The Duke of Sutherland is showing a good example to the landed proprietors of this country, by the efforts he is making in the country from which he takes his title to reclaim and cultivate the waste lands which form such a large proportion of his extensive estates. The quantity of arable land in Sutherland is so small compared to that devoted to grazing, that the sheep farmers are compelled either to leave much of their pastures unutilized, or to be at the disadvantage of getting the wintering for their sheep from the adjoining counties of Ross and Caithness. The Duke, therefore, under the advice of Mr. Kenneth Murray, of Geanies, has set himself the arduous task of bringing under cultivation a portion of land which is advantageously situated in some respects, being only about 6 miles from the railway station at Laing, has a good road running through it, and a supply of limestone in the vicinity. Messrs. Fowler & Co's steam cultivating apparatus was called into operation, and as great difficulties were occasioned by huge blocks of buried stone on the land, a plough was specially devised for the purpose, with a cutting disc in front which lifts the plough over any large boulders that are encountered, and an iron shaft, terminating in a large boldly curved hook which follows, comes into operation and tears the stone or root from the ground. The first actual cultivation was commenced in the summer of 1873, on a tract of 250 acres. It was ploughed, deeply drained, and manured in February last, in the beginning of May was sown with oats, and the growth is now highly promising. The Duke is so encouraged, alike by the fine prospects of the growing crop and by the appearance of the land recently turned up, that he contemplates reclaiming 1,000 acres annually, and the first 1,175 acres will be partitioned into eighteen farms—fifteen of 40 acres each, with 650 acres of pasture in common, and three others of 125, 200, and 250 acres respectively, and 1,400 acres of pasture land to be divided among the three. The new "Sutherland clearances" seem destined to have a beneficial effect on the county of Sutherland.—*Farm. (Eng.)*

Steam Locomotion on Common Roads.

An ingenious Scotch engineer has lately introduced a road-steamer upon the streets of Glasgow, the successful operation of which, and its absolute freedom from objection of any kind, are believed to have solved the problem of steam locomotives on common roads, which has given rise to so much investigation and experiment of late years. By this new arrangement, the engine attached to the road-carriage is so simple in construction, and so completely under control, that it is possible to stop the carriage, when travelling at the rate of six miles an hour, within a distance of fifteen feet. An annulus, provided for the emission of steam in a continuous glow, prevents the noise of puffing and snorting of the engine, and obviates all difficulty and danger of horses shying or becoming frightened. It is stated that the inventor of this road-steamer has applied the principle here involved in the manufacture of a private travelling carriage, and proposes to build steam omnibuses for city convenience and traffic. The small private carriage, after many experiments in the most crowded streets of Glasgow, was found to be perfectly manageable, while the steam omnibus, according to the plan proposed, will, it is believed, prove equally favorable in its operation, besides being from forty to fifty per cent. less expensive in working than an ordinary horse omnibus of the same capacity.

A FOOL and a lazy man stand a worse chance to succeed as a farmer than in any other department of life. To be a good farmer, a man must have good common sense, and he must reduce the facts that nature reveals to him to practice. He must follow nature, not force her. He must be obedient to her mandates.

BRICK-MAKING MACHINE.—An English exchange, *Iron*, speaks of a brick-making machine which compresses 1,500 bricks per hour, but which is capable of producing, if required, a much greater quantity. On a revolving horizontal table are fixed six dies or compressing the clay. On one side of the table stands a man who fills each die with clay, and a man on the other side removes the clay after it has been compressed. Each die is fitted with a hinged lid and a sliding bottom, and as the table revolves the die passes under a fixed plate which compresses the clay. The clay is delivered in a column down an incline from the pug-mill, and is cut into blocks of the required size by a very simple apparatus worked by a man who fills the dies.

Horticulture.

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

THE ORCHARD.

A Good-Keeping Apple.

(To the Editor of the CANADA FARMER.)

SR:—On this 21st day of August, 1874, I used the last of my last year's apples. Considering the locality, &c., I think it is something to boast of, that away down on the banks of the St. Lawrence, in the Ottawa region, apples can be grown that will keep in pretty good condition till the month of August. This apple has no name; it is a seedling, grown from the root of a frost-killed Early Harvest. It resembles in shape and color the Red Gillflower, but is much firmer and better, and the tree is as hardy as the sugar maple.

Up to the 1st of August, I had Spitzenburgs (not Esopus—which is not hardy), Seek-no-further, and the above seedlings. I have now ripe Brockville Beauties, a summer apple equal in every point to the Red Astrachan and the Duchess of Edinburgh. For early apples in central Canada, these three have proved themselves the hardest, earliest, and most prolific bearers, and should be the first selected.

The fruit crop in this region is short, and the codlin moth is doing immense injury. Last spring, according to recommendation, I procured a quantity of cheap printer's ink, plastered it upon narrow strips of cotton cloth, and bound them around the trunks of all my apple trees in such manner that an insect could not crawl up without sticking fast in the ink; yet the apples are much affected, and are fast dropping to the ground. I have come to the conclusion, that unless we can conquer this insect, our first prospects for the future will be gloomy enough.—
Very truly yours,
ST. LAWRENCE.

Prescott, August 21st, 1874

Drought, and How to Meet It.

Perhaps at just this time no topic is of so deep an interest to the reader as *drought*. For at least five weeks now, (July 15,) but little rain has fallen throughout the west, and daily a blazing sun and a drying, scorching wind unite to draw up all the moisture from the parched fields that are not specially fortified against them. This too is not uncommon nor an exception, at least in the west, for I have never known a year, however wet, but what in some portion of it crops have suffered from excessive dryness.

Still the fruit-grower and the gardener must make a certainty of his crops to compensate him for his large outlay in labor, manure, plants, and seeds; he must be able in a considerable measure to avert the evil effects of drought, or else he will find his business so unprofitable and risky, it must be abandoned, and the question is, *How best to do it?*

Of all the methods to retain and obtain moisture foremost and best whenever it can be practical, is the frequent and repeated working of the soil. Not only does this keep the soil porous and light, so that it pumps up moisture from below and sucks it from the passing air above, but I am of the opinion that this thorough tillage gives the plant such thrift and depth of root that it is the more able to resist drought in addition to the increased moisture obtained. Though I had read times without number of the good effect of frequent tillage, I think it was first deeply impressed on my mind some years ago when I first began to double crop largely. In sowing our early peas we usually work every third row wider than the other, and in this plant melons and winter squashes in rows eight feet apart each way, so the ground can be thoroughly cultivated each way, as soon as the pea vines are running. But the early ploughing for peas, the frequent tramping of the pickers, and the usual drought in June, generally leave the spaces as dry as bricks and parts of it as hard as a roadway. Our usual plan has been to put on our cultivator for every four acres, and keep it going for at least a week, by which time the vines interfere. The effect is always striking. By this constant working the soil becomes naturally moist and splendidly loose, and inviting to the plant roots, and the melon vines come forward so rapidly as to astonish every one. Constant cultivation has produced quite as striking results on tomatoes, cucumbers, cabbage and other garden crops. In fact, I believe that cucumber and cabbage can be matured in one quarter less time than what has been supposed

“the quickest in America,” by daily cultivation and daily hand harrowing “before breakfast while the dew is on,” as my paternal used to provokingly suggest from the foot of the stairs on sleepy mornings.

Last spring I determined to double the amount of horse tillage given my land. If I felt any doubt about the profit of them I certainly do not any longer, for my crops never looked better; all of them will yield an increased net profit, and with some this will be double that of former years. To this there is one exception, which will help to prove the rule. When I started east a month ago, I urged upon my men that they keep the cultivators moving, which they did; but under a mistaken idea that it would injure a crop of seeding carrots to work it, a half acre of long orange carrots was left untouched till my return a few days ago. To-day, I see the carrots begin to suffer and sicken under the parching wind that sweeps over the garden, while an acre of seedling Tennisball lettuce is but shallow rooted and very susceptible to the effect of droughts, and the carrots run their extra long roots deep into the soil and are protected with the usual banking. I know of no reason for it save the working twice a week of the lettuce, and the omission of it for a month among the carrots. In fact, I almost believe with Jethro Tull that tillage is manuring, I know it is moisture.

And yet we have many crops (and they important ones) where this cannot be done. About onions in particular I am constantly in receipt of inquiries how they can be protected from drought and made to yield a certain crop in our dry western summer. I know of nothing so good as *thorough enriching* of the ground with well rotted manure. Perhaps the effect is mechanical in securing the right degree of porousness in the soil, perhaps it is the increase of stimulus and plant food that enables the plant to resist drought, probably it is both combined. Certain it is that dry weather will point out as though a line were drawn, just where the heavy manuring ended. I never yet lost a crop of onions from drought on land well manured. My experience with turning under green rye for vine crops proved so satisfactory, especially in protracted drought, as mentioned in the *Recorder* for September, that I last year manured heavily my land from which early rose potatoes had been taken, and after turning it under, sowed some cheap injured marrowfat peas and turned them under just before winter, and this spring sowed the piece to black seed onion. Otherwise than this treatment it was little different from farm land in fair tilth and fertility, but I never before raised so promising a crop, and have nowhere, east or west, seen its equal. Now I do not mean that a crop turned under will always ensure a crop, but evidently it does not *ruin* a crop, and I think that besides fertilizing it greatly aids to resist drought.—
Fruit Recorder.

Treating Orchard Ground

The raising of fruit is the raising of a farm crop. Now to do justice to grain, corn, grass and other crops, care has to be taken. We plough, harrow, and get the land in good tilth; we manure it; we drain it if necessary. If these things are neglected, there will be no crop; if negligently done, there will be a poor crop.

Fruit trees are a farm crop. If the land is properly cultivated and enriched, if it is well drained there will be a good growth; if not, the opposite will be the result. As we treat our orchard so it will be. Hence the effect of our neglected orchards which we so much see. Make the orchard a specialty, that is, devote it to fruit; cultivate the ground for that purpose.

And here an explanation is necessary. If your ground is deeply rich, porous and drained, surface cultivation has little effect. The roots, plunging down, get out of its reach. Manure applied is retained at the surface if the soil is retentive, as a good, well-balanced soil is. Then grass may be grown and crops removed. We have seen this in numerous cases and with the most gratifying results. And here we have found also the best success in fruit growing. The best orchard (apple) that we ever knew was in such soil, the roots piercing down many feet, ploughing permitted up to the tree. This orchard was kept constantly in grass; is in grass to-day and as good as ever, and has been uniformly good for the many years that we have known it.

Such land then is an exception to the general culture of the farm. It does not affect the culture of the grain and grass crops; but it is an exception to the treatment of fruit trees. The advantage here is the depth of the soil. The underground strength is made use of, which cannot be reached by the grain and grass crops, though clover does it to some extent;

and clover grows excellently in such soil, producing two heavy crops, from five to six tons per acre (in two cuttings). This, however, only when sown thick, from ten to twelve quarts per acre. But trees revel most in such soil. It is the soil that should be devoted to them.

Where there is shallow soil the thing is entirely changed. You now have the roots where you have to feed them. They soon absorb the strength of the scant soil. If, in addition, grass or grain is grown, the matter is still worse, unless the crops grown are given to the land. Then there will be an advantage, because an addition. Or manure may be applied in the regular way. The land may be cultivated, but enrichment must go with it, either in leaving the crop or adding manure. Else the orchard will suffer and finally decay.—*Central N.Y. Cor. Utica Herald.*

The Labor of Fruit Culture.

Speaking of planting fruit, the remark is often made that “it is no use to set out trees; they do no good any more in these parts;” and yet it is beyond dispute that there is no country on the face of the globe that in this respect can beat this one. The fact is, we have been spoiled by the very abundance of our riches. Time once was when all one had to do was to stick in a tree and leave the rest to nature. Immense crops resulted from this simple plan without any effort on the part of the fruit grower. Nowhere else could this be done. By the sweat of one's brow is he to labor, not only for his daily bread, but for his fruit also. No one could expect this Eden-like dispensation to last. Bugs and blights are sure to find out the fruit trees, and one has to battle with them in order to succeed in America, as well as elsewhere.

It is very remarkable that those in daily communication with the soil, as fruit growers and gardeners, should expect fruit trees to grow without some care. Look at the labor required to grow the commonest farm crops. Besides the horse labor, and the wear and tear of machinery, and the cost of manure, one has to walk some eighteen miles after the plough in order to get an acre of wheat land ready for sowing; and yet with all this hard work and heavy expense, the profit is often not more than ten dollars an acre. It is so of all farm and garden crops. Every one knows that the labor is enormous—hoeing, digging, working away forever.

Fruit culture, to be successful, requires some expense and some labor. But it requires not nearly as much labor as many other kinds of things do; and in proportion to the labor, the profits are generally greater.

It is one of the lessons our folks have to learn, that the day when nature took care of our fruits for us, and gave us full crops without trouble or care, is gone by. Fruit growing takes its stand now with all other things. It will yield good returns with ordinary care. He who does not yet know this, and calculates to do as his fathers did, had better leave fruit trees alone.—*Thomas Mehan, in Forney's Weekly Press.*

PACKING FRUIT.—The *Garden* says that in France small jars of baked earth have superseded baskets for the package of small fruits for transportation. They hold about a quart each, and are conveyed in large baskets. The fruit is said to arrive in market in these jars in fine condition.

MAKE YOUR TREES BRANCH LOW.—Train your pear trees for garden or field use that they will branch at a distance of one or two feet from the ground. The advantages are easily enumerated:—1. It is easy to trim. 2. It is easy to gather the fruit. 3. Falling fruit is little injured. 4. The branches being sturdy, will not be strained by over-bearing or over-weight of fruit. 5. Soil will be kept shady and moist. 6. The trunk will be protected from the scorching sun. 7. The tree will grow more and more beautiful.—*Horticulturist.*

FLAVOR OF CALIFORNIA APPLE.—The *Parisian Rural Press*, in a recent article, says: But with regard to California apples, there can, we think, be but one opinion, namely, that they are, in a remarkable degree, lacking in strength and variety of flavor. Apple consumers here universally acknowledge it, and so little is expected from California apples in this respect that the growers give little consideration to the question of flavor; and as a consequence of this indifference, in regard to all fruit qualities excepting size and beauty, varieties have become so confused that dealers, and even producers, scarcely know what they are selling, further than that they are apples.

THE FRUIT GARDEN.

Some New Varieties of Strawberries.

New varieties of strawberries are not so numerous as they were a few years ago, yet each season brings out some novelties. There are several enthusiastic amateurs who are quietly at work in the hope of producing a better berry than we yet have. Prominent among these is Mr. E. W. Durand, of Irvington, N. J., to whom we are indebted for Black Defiance, and some others. Mr. D. each year raises some thousands of seedlings, and also tests several thousands of previous years, and thus performs an amount of labor that few would be willing to undertake. Mr. Durand is very careful not to send out any seedlings until they have been tested for several years. A few weeks ago he exhibited at our office a half-dozen new varieties, either of which would have made a sensation a few years ago. One of these novelties in particular will doubtless be heard of hereafter. This berry, in size and quality combined, has probably not been equalled, and Mr. Durand gives an excellent account of the plant. The variety has not yet received a name, but fruit growers will be glad to know that Mr. Durand still continues his labors, and that there are some fine results in store for them.

THE DUCHESS. Last year, Dr. Hexamer, of New Castle, Westchester Co., N. Y., sent us specimens of the fruit of this variety, which seemed to be of excellent quality, and early. Our own plants being too small to allow of a fair judgment, we requested Dr. H. to state how the Duchess had done with him. He replies:—

"It has for three years ripened earlier than any other of over one hundred kinds. Its berries are larger than those of other very early varieties, hold out well in size, and are of uniform globular shape, without neck; color, light crimson, flavor, good and sprightly, without being acid like the Wilson, texture, firm. Berries sent to Virginia, arrived there in good condition three days after being picked. Foliage hardy and vigorous, withstanding the severe drought of last summer exceedingly well. This variety has not yet been disseminated, but will, if it succeeds in other localities as well as in the vicinity of New York, make a most valuable addition to the list of early strawberries."

As Dr. H. has a soil quite different from ours, we requested he would state how some of the newer sorts have done with him, and he adds the following notes:—

MONARCH OF THE WEST.—A large, irregular, globular berry, of dark crimson color, ran flavor, and moderate firmness. On our soil, a light clay, it is not productive enough to be profitable.

CHAMPION.—Reports from many localities show that this variety is not excelled in size and productiveness. Its quality is rather indifferent, and it lacks the firmness necessary to withstand long carriage, but for local markets it will, no doubt, be much sought for.

BLACK DEFIANCE.—Continues to gain many friends. It seems well adapted for many varying localities and soils, and its large size, excellent flavor, and great productiveness, make it one of the most valuable varieties for the family garden.

Dr. WARDER did not bring to the east its good qualities, which gained for it at the west the silver cup of the Cincinnati Horticultural Society.

Our experience with these two last named varieties is the same as that of Dr. Hexamer—*American Agriculturist*.

The Raspberry.

The raspberry, like all other kinds of fruit, has its preference in soil, but at the same time will flourish on quite a diversity of soils. We have had it to do tolerably well, under good culture, on light, sandy loam, on clay loam, on clay, and on muck, but would prefer a strong sandy loam for the black varieties, and a mellow clay loam for the red ones. We think that maximum crops can be grown on such soils.

There is no use in trying to determine which are absolutely the better kinds—red or black—for every one has his or her preference, and no force of argument that they ought to prefer a different kind will avail to alter their taste. Some go so far as to declare that black-caps are most to eat, and that a preference for them denotes a delicate, delicate taste, nevertheless, there are many who prefer them to the red. We think that a diversity of tastes will be best suited by planting both kinds.

There are a great many varieties of both classes in cultivation, but quite a limited number of the reds that will endure our climate without protection in winter. We consider the *Clark* the best of the hardier varieties, although the *Philadelphia* may be

rather more productive. The *Kirtland* is hardy, early, and good flavored, but small, and unproductive. Those who are particularly fond of the flavor of the *Hudson River Antwerp* ought to be willing to perform the little extra labor required to bend down the canes and cover their tips with earth, as a winter protection. Some speak very highly of the new seedlings—*Herstine* and *Sanders*, but we are inclined to the belief that the weight of testimony is against them.

The reds may be planted in the garden as close as four feet each way, provided that they are kept tied up neatly to stakes, and all unnecessary sprouts treated rigorously as weeds.

Of the black-caps there are several good varieties, differing somewhat in size, season, productiveness, and quality. The *Darwin's Thornless* is the earliest, the pleasantest to work among, medium in size, good in quality, and of fair productiveness. The *Doolittle*, after all the trial and criticism to which it has been subjected, stands high among small fruit growers. The *Seneeca* is a good berry; by some regarded as good as the best, a little later than *Doolittle*, rather variable in productiveness. *Mammoth Cluster*, wherever it has been tested, maintains its place at the head of black-caps, for size, quality, and productiveness. It is covered with a white bloom, which changes on exposure to a pink color, rendering them less attractive in market than they otherwise would be, but their large size, and small number of seeds commend them. They are softer than *Doolittle*, and consequently will not bear handling and shipping so well.

Raspberry plantations will attain to their maximum productiveness in two and three years from planting, and begin to decline in four or five years. We would not allow them to stand longer than five years. When a patch has stood three years, another should be set out to come into full bearing when the first is removed. In this way a family will always have a good supply.—*Rural Home*.

The best Currants.

The old Red Dutch and White Dutch are good, reliable sorts, and we would not advise any one who has them growing in his garden to throw them out. Larger currants, however, may be picked more readily, they make a finer show on the table, and they last longer on the bushes without drying.

The two sorts that we place above all others, therefore, are the white grape and Versailles or cherry. Mixed together they make a beautiful table dish. The only drawback on the white grape is the slow and straggling growth of the bush; but this objection is obviated by giving them clean and mellow culture, applying manure occasionally, and keeping them sufficiently pruned. It will not do to neglect them, and to allow them to become enveloped in grass and weeds, the usual fate of currant bushes with careless managers. The cherry, on the other hand, is a strong grower, and does not absolutely need such generous treatment, but it is better to cultivate it well, and prune the bushes as they require it. Our own bushes of the cherry, which have stood in the garden 15 years, are three times as large as those of the white grape planted at the same time, and they always bear profusely. When allowed to hang long, and become fully mature, they lose their objectionable acidity, and are a rich and agreeable berry.

The Versailles is so nearly like the cherry, that if the planter has one, he need not take the trouble to procure the other—although the bunches of the Versailles have the advantage of being rather the longer.

The Victoria and Prince Albert are good very late varieties—the former red, the latter pale red—a few of which may be planted for a succession.

All that is absolutely needed in the pruning which we have alluded to, is to cut out the old and enfeebled wood, to give the younger shoots, evenly distributed through the bush, a better chance to grow. This will make large bunches and berries.—*Country Gentleman*.

Sulphur for Mildew of Grapes.

M. B. Batcham says in the *Horticulturist*. Much interest was excited at the late annual meeting of our State Horticultural Society, by reports of recent experiments with the use of sulphur on Catawba vineyards at the islands. It was stated by one of the grape-growers from there, that sulphuring the vines had been practised to some extent for several years past, and when judiciously done, it was found a certain preventive of mildew and rotting of the fruit, and also of the blighting of the foliage, and where this was practised, in 1872, the vines ripened their wood so well as to suffer but little damage from

the winter, and thus produced a half crop, while vineyards not sulphured bore no fruit at all. These facts will cause a very general use of sulphur hereafter.

The practice is, to mix the sulphur with an equal quantity of fine air-slacked lime, and apply the powder with bellows, of which they manufacture a very cheap style for the purpose. The first application is made as soon as the blossoms are off, in June, and repeat once a month or so during the summer. The labor and expense are quite small compared with the benefits; and the practice is recommended to grape-growers generally, especially for varieties that are subject to mildew or blighting of the foliage. Let us all give the experiment a trial, and report the results next year.

The Fruit Crop in Great Britain.

From the reports of the fruit crops which we published in our last, and which we continue in our present issue, it will be seen that, though early in the season the promise of abundant crops was great, the result in many places has not fulfilled our expectations. This is not to be wondered at when it is remembered that in May and in the early part of June we had hard and continuous frost, and bitter easterly winds. Every thing, too, has suffered from want of water, and blight and insects have been usually abundant. Peaches and nectarines on open walls have done well but in few places, and the same may be said of apricots, which have done better on north walls this season than on any other aspect. As regards spring protection, Mr. Knight, of Floors Castle, prefers branches of silver fir to any other kind of covering, except indeed it be an evergreen coping of ivy which he is leading from an east aspect, on which it grows, over a west one on which he has his apricots. Ivy, where it exists on outside walls, might doubtless often be used with advantage in this way. The apple crop is by no means good anywhere, and in some places it is quite a failure. In Scotland, however, it seems to be rather better than in England. Pears and plums are nearly everywhere fair crops, except perhaps damsons, which are variable. Rivers' early prolific appears to have succeeded in some places where other sorts have failed. Cherries are plentiful but small; morello, grown in the form of dwarf bushes, are said to bear better, and to be less subject to insects than trees trained on north walls. What are termed bush fruits are abundant. Walnuts and other nuts are in general scarce. Where heavy mulchings of dung have been applied the greatest possible benefit has been derived from them, keeping, as they have done this roasting season, the ground cool and, comparatively speaking, moist. *The Garden*.

RODGERS No. FOUR, or Wilder, is said to be an excellent keeper, though one of the early ripening sorts. Judge Ramsdell, of Grand Traverse, has kept it till the middle of June, and there are frequent accounts of its rare quality in this respect.

A GENTLEMAN in Lake View, near Chicago, while standing near some fine cherry trees on his premises, heard a strange noise, and looking up saw the bark of the trees peeling off at the top, curling downward along trunk and limbs until it reached the ground, leaving the trees perfectly bare. The process occupied but a few seconds.

TO REMOVE FRUIT STAINS.—A solution of chloride of soda will remove peach and all fruit or vegetable stains, and is also excellent in removing mildew; but for this it must be applied several times, and exposed to the sun, while fruit can be removed by it instantly. Of course, it can only be used for white cotton or linen goods. It is perfectly harmless, if well mixed in clear water immediately after using.

RUST on blackberries is becoming quite common in some portions of the country. It arises perhaps from want of a full supply of food in connection with the hygrometric condition of the atmosphere, and the only remedy that suggests itself is good culture, thinning out the plants and mulching well with leaf mould and manure, or muck and manure, or manure alone. A sure remedy is the removal and burning of the diseased bushes.

A NEW EARLY CHERRY.—James Dougall of Amherstburgh, sent specimens of a new seedling cherry, to the meeting of the State Pomological Society at Adrian, Michigan, which will be likely to prove valuable if its good qualities are maintained in other localities. The fruit is black, and the specimens averaged by measurement three-fourths of an inch in diameter, and were of good quality. The best ones had been previously picked, and those sent were hardly full sized. Mr. D. stated that this new sort ripened uniformly a week earlier than Early Purple Guigne, on trees standing side by side.

THE FLOWER GARDEN.

Libonia Floribunda.

This plant is a native of Brazil, and was first introduced into cultivation about ten or twelve years since, by its discoverer Libon, after whom it was named. It belongs to the natural family of the Acanthaceae, and forms a neat bush about 1½ or 2 feet high, with downy stems and branches which are somewhat swollen at the joints. The leaves are small oval lance-shaped, opposite, of a fine glistening green on the upper surface, and whitish underneath. The flowers, which are very numerous, are tubular in shape, and of a scarlet color, tipped with yellow at the mouth. They usually begin to appear in January, and the plant continues to bloom until March or April. It requires the heat of a moderately warm plant house, and thrives in a compost of sandy loam, leaf mould, and heath soil. It has been objected against this plant, that it is very prone to shed its leaves unseasonably, and so becomes unsightly. This, however, may be avoided by keeping it in a steady, equable temperature. If placed abruptly in a high temperature, the leaves are sure to fall. The plant is easily multiplied by cuttings struck in heat. The following mode of culture, communicated by M. Bisson to the *Empire Horticole*, is stated by him to be perfectly successful in preventing the plants from losing their leaves. "I strike my cuttings in spring, when they are well-rooted I plant them out, at distances of 7 or 8 inches in a well-drained bed, composed of half sand and half spent hot-bed material, and keep them covered with a frame until all danger from frost is over. I admit air by degrees, finally removing the frame altogether, and leaving the plants in the open air until the end of September, when I transplant them again into a bed of the same material, and cover them with a frame, under which I leave them for a month or six weeks, when I remove them to their permanent quarters in the plant-house, and find that they turn out equally well whether I place them in a warm house or a temperate one. Plants a year old, treated in the same way, succeed quite as well. I cut them back and prune them in before planting. *The Gardener*.

Lily of the Valley

The flowery month of May produces no plant more exquisite either in form or fragrance than this. Most plants have an especial beauty of their own—a something distinctive that is capable of endearing them to us, but this lily has attractions peculiarly its own. The graceful manner in which its pretty white bells hang on the slender, arching stems, and the agreeable contrast which they make with the bright green foliage, have rendered this little flower not only a favorite with all parties, but especially so with our poets. This little modest flower formerly grew in our woods and valleys in great abundance, but increased cultivation has rendered it comparatively rare in a natural state. In gardens, however, it is the most cherished of all hardy flowers, and the quantities of it used for forcing in early spring would surprise the uninitiated in these matters. Old writers on gardening tell us that about the end of the fifteenth century it grew abundantly on Hampstead Heath, in Bushy Park, at Lee, in Essex, and indeed in most counties in England. It grows plentifully in the woods of France and Germany, and is indigenous to most parts of Europe—from Italy to Lapland. It is sometimes called May flower; but as it grows spontaneously in shady places, though not in reality a lily, the name lily of the valley seems a natural one. The best situation in which to place this lily in the garden is where it will be partially shaded by shrubs and trees, and it flowers even better in a north aspect than when fully exposed to the noonday sun. It will succeed in almost any kind of soil, but it blossoms in greatest abundance in a light soil, rather poor than otherwise; for, when planted in rich garden earth, the roots spread and multiply rapidly, but the plants produce but few flowers, and, like many other creeping-rooted plants, it seldom seeds. This lily may be planted with advantage by the sides of water where, beneath the branches of some weeping willow, or other pendulous tree, its fragrance quite scents the air. Autumn is the best time for placing the roots of this lily in the ground, in which they should be covered about two inches in depth, and should not be disturbed oftener than every third or fourth year, as they seldom flower strongly or plentifully the year after being removed. When above ground they will require no other attention than that of keeping them free from weeds. Lily of the valley is said to be so abundant in woods in Hanover that the ground in many places is completely carpeted with it, and the air to a considerable distance scented with its agreeable per-

fume. In Germany it used to be common to make a wine of these flowers, by drying them in the summer, and in the time of vintage mixing them with grapes when pressed. A snuff has also been sometimes made of the dried flowers and of the leaves and essential oil of Marjoram. The fresh blossoms, gathered while wet with the morning dew, have also been used for purposes of distillation. *The Gardener*.

Sleeping Flowers.

Almost all flowers sleep during the night. The marigold goes to bed with the sun and with lam rises, weeping. Many plants are so sensitive that they close their leaves during the passage of a cloud. The dandelion opens at five or six in the morning, and shuts at nine in the evening. The goat's head wakes at three in the morning, and shuts at five or six in the evening. The English daisy shuts up its blossoms in the evening, and opens its "day's eye" to meet the early beams of the morning sun. The crocus, tulip, and many others close their blossoms at different hours toward the evening. The ivy-leaved lettuce opens at eight in the morning, and closes forever at four in the afternoon. The night-flowering cereus turns night into day, it begins to expand its magnificent sweet-scented blossoms in the twilight; it is full blown at midnight, and closes, never to open again, with the dawn of day. In a clover field not a leaf opens till after sunrise.

Those plants which seem to be awake all night have been called the "bats and owls of the vegetable kingdom."

Tulips.

Of the several species of the tulip, the common, or *Tulipa Gesneriana*, on account of its hardness, brilliancy and wide and easy cultivation, has been termed "the poor man's flower," as well as "the king of florists' flowers." It was brought to Europe from Persia, by way of Constantinople, over three hundred years ago, and becoming an object of trade in the Netherlands, single bulbs sold for two or three thousand dollars or more, giving origin to the name "tulip fools." The mania afterwards extended to England, but more recently it has given way to a taste for rare plants from foreign countries. A correspondent of *The Gardener* furnishes the following list of species and their native localities, taken from Tchihatcheff's "Asie Mineure." "*Tulipa armena* grows at an elevation of 6,000 feet; *T. montana* found on the Troad, Mysia, at Erzeroum, and on Mount Ararat, at elevations of from 6,000 to 9,000 feet. *T. Gesneriana*, found in Armenia at from 6,000 to 7,000 feet; *T. Julia*, also found in Armenia. *T. undulatifolia* is found in rich pastures near the top of Mount Tahtali, near Smyrna; *T. Sibthorpii* is found at Makri, on the Lycian coast, and at Porto Cavaliere. Two species not noticed by Dr. Regel are also mentioned, namely, *Tulipa pulchella* found by Kotschy, in the Silician Bulgaridagh, at an elevation of 6,000 to 7,000 feet (Ky. Reise in Cilie Taur., p. 379), and *Tulipa Thirkiana*, C. Koch. (*T. tricolor*, C. Koch, in Linn., xix., non Lideb.) [sic in Tchihatcheff], found near Broussa." To which we may add that there are several other species, some of which are difficult to distinguish from each other, and a few known to cultivators, under the name of Van Thol's, Turkish tulip, and Clasio's and Cels, the last two elegant little border bulbs.—*Country Gentleman*.

To Root Roses and other Cuttings.

In midsummer fill an old milk-pan (says a correspondent of the *Laws of Life*) with the purest sand obtainable; set it full as you like of cuttings suitable for rooting, that is, fresh growing shoots of herbaceous plants, that when bent suddenly will snap off, or new growths of roses and other woody plants; pinch out the terminal bud and take off all the leaves except the two upper ones; insert two or three joints of any cutting below the surface of the sand. Place the pan out of doors where the sun at no time of the day will strike it so as to wilt the leaves, and keep the sand all the time wet as mud, using warm water. It may need to be wetted twice a day to keep sufficiently moist, as evaporation is very rapid in the open air in dry weather. As soon as the slips show growth, pot them off in thumb-pots in light, rich soil, largely mixed with sand so that the new forming roots may have free course. Keep them shaded and well watered; they are more easily cared for if set in a box of moist tan bark or sand, and as the pots fill up with roots, transfer to larger pots in stronger soil, as the different plants may need. If there is a suitable place for them they may be set out at once in a border. By this simple means, choice plants may be increased indefinitely.

Artificial Flowers of Tin.

In a recent number of a Berlin journal we find the following directions for making accurate copies of natural flowers and leaves from ordinary sheet tin: The method is somewhat similar to that employed for wax flowers, and the dies, of course, require to be made of stronger material. The leaf or petal to be copied is first oiled on one side, and then laid lightly upon some dry plaster of Paris, or very fine sand, in such a manner that the oiled surface is uppermost. A little bank of clay is built around it and the mixture of plaster of Paris and water poured in, care being taken to remove the air bubbles with a soft brush. In stead of plaster of Paris melted stearine, mixed with powdered gypsum, may be employed, where the leaves are quite thick and strong. Very delicate leaves must first be painted over with a brush dipped in soap water, after which several thin layers of plaster of Paris are applied with a brush, fine wire being introduced to give it firmness. The leaves thus prepared are either oiled or used to make plaster casts, or they may be coated with black lead and have copper deposited upon them by electricity. The upper stamp having been formed, the matrix, or lower stamp, is easily made from this. The tin is first cut into the required shape, either by hand or by a suitable die, and then pressed into the required shape between iron or steel stamps, cast after the plaster moulds just described. Each of the pieces required to form a flower, having been prepared separately, are carefully soldered together, a stem and leaves added, and the whole object so bent and twisted as to avoid the appearance of stiffness. They may finally be painted with the natural colors and varnished.

THE WEAVING POETRY, says *The American Agriculturist*, is now being written up abroad, and this will probably convince our planters, what we have for years insisted upon, that it is one of the most valuable of lawn trees.

"A SOLID U.K. KAMNESS steals around, a dred orecums the sole, when in my pocket's depth I sound and only find a hole. O thus when life's brief span is past, and death yanks out my sole, how dreary life will seem at last, when taken as a hole. But still this consolation's left, to cheer the drooping sole, though through it I m of all berett, I cannot lose the hole."

AMMONIA FOR FLOWERS.—The *Fruit Recorder*—good authority says, that the sulphate of ammonia is an excellent manurial used to apply to verbena or any other flower, giving to the foliage a dark green luxuriant and healthy appearance. It is economical, and easily applied. Prepare it the evening before using by dissolving one ounce of ammonia in two gallons of water. It may be applied once a week with safety.

DWARF FLOWERING ALMOND.—The *Rural New Yorker* recommends the budding of this beautiful shrub on plum stocks, for giving a handsome form like miniature trees. A small head is first formed to the plum stock about three feet high, by cutting back at that point, giving three or four side shoots. These are budded in summer with the almond, and treated as other budded trees. It is recommended also to work the new and beautiful *Prunus tribolata* in the same way.

ORNAMENTAL HEDGE.—Mr. Edwin Marsh, nearly a mile west of Agawam Centre, Mass., has a very handsome hedge of white pine. This tree was placed by Downing at the head of the beautiful evergreens. Planted near it is a well trimmed Hemlock hedge, and opposite, on the grounds of Mr. Goddard, a very beautiful hedge of the American Arbor Vita. On account of its brighter and never changing green, we had, in this case, to give our preference to the white pine. For dry sandy soil it is peculiarly adapted.—*New England Homestead*.

NITROGEN AND PLANTS.—In a notice of Deherain's work on agricultural chemistry, recently published, the important question is raised—In what form is nitrogen assimilated by plants? Kuhlmann maintains that nitrates are not taken up until reduction has taken place, and their nitrogen has entered into an ammoniacal combination. On the other hand, Colez holds that ammoniacal salts are inactive till their nitrogen has passed into a nitro-compound. Neither of these views has as yet been demonstrated. Mr. Deherain combats the view of M. Ville that plants can assimilate directly the free nitrogen of the atmosphere; but he holds that in soils containing decomposing organic matter, the nitrogen of the air forms ammonia in the absence of oxygen. Carbonic acid is formed and nascent hydrogen unites with the atmospheric nitrogen to form ammonia.—*Chemical News*.

THE VEGETABLE GARDEN.

Mulching in the Fruit, Flower, and Kitchen Garden.

Mulching (i.e., covering the surface of the ground between growing crops with some loose material to prevent evaporation) will effectually save much labor in watering, and to a very considerable extent make up for poverty in the soil. Materials for mulching are generally plentiful in most gardens; decayed hot-bed manure is one of the best, and when this cannot be had short grass is generally plentiful. Most fruit and vegetable crops are benefited by mulching, but some more so than others. The raspberry, for instance, which delights in a somewhat moist soil, and is a shallow rooter, should always be mulched in dry situations. Our soil is dry and thin, and not well adapted to the raspberry; but by mulching thickly, we always secure great crops of fine fruit. In fact, the weight of the fruit is nearly doubled in consequence. Celery, too, is mulched thickly with short grass as soon as planted, and it seldom requires more than one or two good waterings. Let the weather be ever so dry, the surface under the grass is always moist. The mildew which affects the pea in dry summers is greatly checked, or altogether prevented, by good mulchings along the rows, and extending outwards from the sides about 18 inches. Brussels, sprouts, broccoli, cauliflower, etc., which often hang fire after planting in a dry June, make marvellous progress with their roots under a good layer of short grass. Potatoes, though they too are much benefited by the same means in dry seasons, are better without it, as a rule, in case of wet setting in autumn, and thereby aggravating the disease; but this is the only exception. The health of gooseberry and currant bushes is greatly promoted by mulching, and indeed all kinds of fruit-trees, especially stone-fruits; and newly-planted trees of all descriptions are often saved from perishing by a good top-dressing of rotten litter, and such like, during summer and winter. In the flower-garden mulching is not admissible, but we generally practice it with Calceolarias, and the disease is unknown with us, though we have to contend with a dry cakey soil. The iris, too, should be mulched; it is a moisture-loving plant, and will thrive if mulched where it will sometimes not do any good otherwise. In vine and peach borders, whether inside or outside, mulching is almost indispensable. In some places where they are raked painfully smooth and neat, sometimes they get so rent with the drought during summer, that a man has to go over them every week to fill up the cracks. Good grapes are seldom to be found under such circumstances. A mulching 4 or 5 inches thick, of rotten litter and leaves, is best for vines, and a border so dressed need never offend any eye not painfully sensitive on the score of neatness. Large plants in pots, such as figs, pot vines, pines, orchard-house trees, &c., should also be mulched when practicable, as roots are often near the surface, and are apt to suffer from irregular attention in watering. Apart from the advantages of mulching in a labor-saving respect, and as a conservator of moisture, it keeps the soil about the roots at an equable temperature, by preventing radiation in cold weather, and the bare soil from the roasting effects of the sun in warm weather—a condition of things very unfavorable to vegetable life generally.—*Gardener.*

Keep that which Suits You.

A cultivator will often be surprised to find some favorite fruit of his condemned by writers on pomology, discarded by fruit committees, and voted down by conventions with a unanimous good will. This voting upon fruit seems to be a natural right and privilege, not limited to either color or sex. Any one can vote or express an opinion any other way as to the quality of a fruit without cost or accountability. But if a grower finds an apple, or pear, or grape, or strawberry which bears well and often, is healthy and sells well in his market, what need he care if societies or committees pronounce it good for nothing. He knows it is good for something for him, and that is enough. Just now a great many are crying down the Wilson strawberry, and exalting other sorts which have proved more promising; but should that cause you to throw away the Wilson, which proves to be the most profitable on your grounds? By no means. The only sensible rule is to stick to those fruits which do well on your grounds, regardless of what some persons cast, west or south may say about them. To know just what to grow in any certain locality, of all the different kinds of fruit is great wisdom indeed, and can only be obtained by actual trial, but once obtained, keep the knowledge and profit by it.

FIVE BUSHELS of grapes upon a single vine, made glad the heart of its owner in Indiana.

A RICH harvest of prunes is anticipated this season in different parts of Europe.

A NEW enemy of the horticulturist has appeared in St Joseph county in the shape of a raspberry borer, which attacks the root and eats the pith. Many of the bushes which bore luxuriantly last year, are entirely dead in consequence of the work of this insect.—*Lansing, Mich., Journal.*

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.

A CERTAIN CROP.—Under the improved system of agriculture and of draining, great preparations had been made for securing a good crop in a certain field where Lord Fife, his factor, and others interested in the subject, were collected together. There was much discussion, and some difference of opinion as to the crop with which the field had best be sown. The idiot retainer, who had been listening unnoticed to all that had been said, at last cried out, "Saw't wi' factors, my lord; they are sure to thrive everywhere."

MARK YOUR TOOLS.—You can easily mark your name upon steel by a process called etching. Coat over the tools with a thin layer of wax or hard tallow, by first warming the steel and rubbing on the wax, warm until it flows, and let it cool. When hard mark your name through the wax with a graver and apply by aquafortis (nitric acid); after a few moments wash off the acid thoroughly with water, warm the metal enough to melt the wax, and wipe it off with a soft rag. The letters will be found etched into the steel.

Agricultural Chemistry.

Relative Value of Cattle-box Manure and Farm-yard Manure.

CHARLES LAWRENCE,
In *Journal Royal Agricultural Society.*

Having been informed that, amongst the minor contributions invited for the journal of the society, any analysis of matters with which farmers have to deal would be acceptable, I send three analyses of manures which I have had made at various times, by Professor Way and Dr. Voelcker. Nos. 1 and 2 were made some years ago.

No. 1 is a comparative analysis I was desirous of obtaining to test the relative values of farm-yard manure and manure from the cattle-boxes. My object having been a fair comparison of the value of manure made under nearly similar circumstances in other respects, I obtained a sample of manure from an open yard in which animals were being fattened, rather than from a mere stock-yard for young beasts; and the other sample was taken from my boxes.

No. 2 is an analysis of a sample of manure taken from my boxes, made at a subsequent period by Professor Way. The small proportion of ready-formed ammonia would operate unfavorably on the minds of farmers who have yet to learn that ammonia is the result of fermentation and decomposition, the production of which is a main object of the box system of feeding.

No. 3 is analysis, made by Dr. Voelcker, of manure taken at another period, soon after it had been removed from the same boxes, and heaped. Those who have not previously inspected this system of feeding, and have had an opportunity of seeing at one moment the boxes full of the accumulation of some three or four months' manure, invariably express their surprise at the sweetness of the range of bins; and, in a few minutes afterwards, on setting the forks to work to empty the boxes, still greater surprise at the almost instantaneous evolution of volatile gases on the admission of air to the dense compound below.

No. 1.—Analysis of Box Manure and Yard Manure.
By Professor Way

	Box Manure.	Farm yard Manure.
Water per cent.....	71.4	71.8
100 parts dried at 75 to 80 Fahr. gave of ammonia.....	2.73	1.7
Matters soluble in water, organic and inorganic.....	1.07	4.0

Which left on incineration a fixed residue of.....	7.18	2.78
This fixed residue consisted of—		
Silica.....	Not determined	
Phosphoric acid.....	0.30	0.26
Alkalies, potash and soda.....	2.00	0.50

For the sake of showing at a glance the difference between the two manures, the results are given under another arrangement, as follows:

	Box Manure.	Farm yard Manure.
Water per cent.....	71.4	71.8
100 parts dried at from 75 to 80 Fahr.—		
Nitrogen equivalent to ammonia.....	2.37	1.7
Organic matter removable by water.....	6.42	1.82
Inorganic do. consisting of phosphoric acid.....	0.30	0.26
Alkalies.....	2.00	0.50
Silica, a considerable quantity, not determined.....		Lime and Silica
Lime, a trace.....		Not determined.

No. 2.—Analysis of Box Manure from Mr. Lawrence.
By Professor Way.

100 parts of the manure contained—	
Water.....	72.33
Organic matter.....	21.80
Mineral matter or ash.....	5.87
	100.00

An approximative estimation was made of the relation between the straw and the real dung (both being dry), and the result was as follows.

	Per cent.
Straw.....	41
Dung.....	59

The following is the analysis of the ash:

Ash of Box Manure.

soluble silica.....	27.30
Phosphoric acid.....	5.11
Sulphuric acid.....	1.11
Carbonic acid.....	0.95
Lime.....	14.41
Magnesia.....	2.40
Peroxide of iron and alumina.....	7.31
Potash.....	11.70
Soda.....	2.05
Chloride of potassium.....	None
Chloride of sodium.....	3.82
Sand and clay.....	21.50
	92.15

Examined for nitrogen, the manure gave—

1st experiment.....	0.47	per cent. on the manure in its natural state.
2nd experiment.....	0.45	
Mean.....	0.46	

This last (0.46) would eventually produce 0.56 per cent. of ammonia.

The ammonia actually existing as such in the manure was found to be 0.2 per cent.

The following will be the ingredients of 100 parts of the manure:

Water.....	72.330
Organic matter.....	21.800
Silica.....	1.637
Phosphoric acid.....	2.99
Sulphuric acid.....	0.65
Lime.....	14.41
Magnesia.....	2.40
Peroxide of iron and alumina.....	7.31
Potash.....	11.70
Soda.....	2.05
Chloride of potassium.....	None
Chloride of sodium.....	3.82
Sand and clay.....	21.50
Carbonic acid.....	0.95
	99.944
Nitrogen in the original matter.....	0.460
Equal to ammonia.....	0.560

The sand and clay, although in large proportion in the ash, only exist to the extent of 1 1/2 per cent. in the manure itself. The way in which this impurity is introduced will need no explanation.

A striking fact is the small portion of ready formed ammonia in the manure, only two parts of 50 being in that condition. This circumstance may be taken as conclusive evidence of the very small extent to which fermentation of the material proceeds in well constructed boxes.

No. 3.—Analysis of sample of manure. By Professor Voelcker.

	Natural Per cent.	Dry Per cent.
Water.....	66.426	
Organic matter.....	26.806	82.318
Ash.....	(5.758)	10.628
	Natural Per cent.	Dry Per cent.
Containing—		
Insoluble silicious matter.....	1.795	5.215
Phosphates.....	2.313	7.102
Equal to phosphoric acid.....	(1.001)	3.410
Carbonate of lime.....	0.282	0.866
Magnesia and alkaline salts.....	1.337	4.199
	100.000	100.000
Contain Ammonia (N. H3.).....	1.067	3.270

Poultry Yard.

Poultry Notes.—No. 17

Matching—Exhibition Standards.

The intending exhibitor will now commence making his selections for our Provincial and other shows, and in doing so ought to be guided by the rules which govern judges in making their awards, and which may be said to be composed only of two, that is, properly matching in the pen and the value of exhibition points. The first care of an exhibitor should be to see that his birds are properly matched in color; this is very important, and want of attention to it has been the frequent loss of a first prize to many an otherwise well deserving pair of fowls. Taken singly and examined, they may be all the most fastidious fancier could desire, but when placed together in the pen there may be a difference of color fatal to their chance of taking a prize. Every intending exhibitor ought therefore to provide himself with a few pairs of pens in which to place his birds for examination before making his final selections. This can always be much better done quietly at home in his own yards than in any other place, and defects or imperfections more easily discovered, each point can be deliberately studied. It is not always the best looking bird in the yard or on the run which appears to greatest advantage in the show pen. If shown in trios, each pair of hens or pullets should match in color and markings exactly. And here it may be remarked, that matching in the heads and breasts is perhaps the most important to secure, for this reason, that these parts are the first to meet the eye, and it is surprising what effect the opinion formed on first sight has on the mind. We do not mean to say that good judges, on closer examination or on perceiving other defects, would award a prize simply for the reason we have mentioned; but we all know that on our first introduction to a stranger, there is an undefinable something which creates either a favorable or unfavorable impression on the mind respecting him, which, although sometimes erroneous, is difficult to eradicate. So it is with the first impression formed of a pair of fowls in the show pen, and therefore more attention in selecting birds properly matched in the parts which first strike the eye is of greater importance than in the less conspicuous parts, although of course it is highly essential that matching in every part should be as perfect as possible. In selecting birds, it will be necessary to distinguish between faults which are nearly fatal, and others which are matters merely of comparison. In Hamburgs a white leg or a lopping comb would be a disqualification, but in the feather markings it would not be so; the pencilling or spangling may not be quite so sharp or well defined in one bird as in the other, yet neither is a disqualification. So also of Spanish: a red face would be fatal, but the extent of the white face is matter for competition. A very successful English breeder and exhibitor usually kept such of his cockerels as he had intended for exhibition with some other larger and fiercer birds, so as to keep them "well under," as he was pleased to term it, till some weeks before showing. They were not of course to be regularly thrashed by the fiercer birds, but sufficiently cowed down to be in fear, and so driven about as always to show a good appetite for their food. About a fortnight or three weeks before showing time these cockerels would be placed by themselves with a couple of old hens for company, and the effect of the change was wonderful. The bird would set himself up, and put on airs and style which no other treatment would produce, and thus learned to show himself off to the very best advantage.

The value of "exhibition points" is the next point to be considered. To enable judges to form definite ideas of what would constitute an exhibition bird, a certain code of rules or canons were adopted by a

number of gentlemen in London, England, forming a society known as the "Poultry Club." These were subsequently published, ostensibly for the guidance of members of the club, but found their way into the hands of other fanciers, and were first given to the general public in an appendix to the first edition of Mr. Tegetmeier's Poultry Book, much to the disgust of some of the members, who did not fail to enter a strong protest against it. Whatever may be said to the contrary, there is not the least doubt but the publication of this "standard of excellence" was of infinite value to breeders and exhibitors as well as to judges at the time it appeared; and defective though it may be, when taken in connection with the increased knowledge of poultry breeding since acquired, it cannot for a moment be doubted that it helped to mould the very minds of those who are now the loudest in proclaiming to the world its imperfections. Did we require proof of this, we can only point to subsequent standards, whether English or American, to show that although a difference of opinion may arise as to the details, the basis on which formed is substantially the same. Although issued, as has been asserted, by a self-constituted body, never possessing the confidence of the public, it is not denied that it furnished a useful basis for a more perfect system of judging. So much then as to the inception of "a standard of excellence" and its would be detractors: let us now see how to apply it to the mutual benefit of judges and exhibitors at this season. The English standard, after giving schedules or descriptions of each variety of fowls, placed a numerical value on what are known to breeders as the fancy points in a fowl, amounting altogether to fifteen in number. These values are not alike in all breeds, nor are the fancy points similar in name or number. Some breeds have a greater number of fancy points than others; hence the values of such had to be lowered in number, to keep within the arbitrary number of fifteen as a total. The American standard, for the first time published in 1871, was almost a literal copy of the English edition, excepting as to the numerical value of the fancy points, and the addition of a few breeds either unknown in England, or not considered of sufficient importance to place them in the standard. Regarding the fancy points and their numerical values there is considerable difference. It was held by American fanciers that the number fifteen was altogether too small to show the relative values to each and to the whole of the fancy points, besides which they could see no valid reason why such a number should have been adopted, it being incapable of that subdivision necessary to arrive at the true value of each fancy point, and substituted for it the number of one hundred as a total. Whether this idea was original with themselves, or merely borrowed from Mr. Wright, in forming an independent scale for judging dark Brahmas, and given to the public in a little work published by him some years since, entitled "The Brahma Fowl," we are left in ignorance by the American fanciers. Adopting the number one hundred as the total in the American standard," the separate values of each of the fancy points were then placed at five or some multiple thereof, a standard as arbitrary in itself and as unjustifiable as that condemned in the English standard, with fifteen as a total. Since the publication of both the above standards, Mr. Wright has given to the world in his "Illustrated Book of Poultry," a "standard" of his own, original in conception, and by a different mode of reasoning arriving at a somewhat similar conclusion to that of the American standard. While he denies that book-judging is the correct means of arriving at the true knowledge of the excellences of an exhibition fowl, inasmuch as it is not elastic enough, and can make no allowances for many things which he enumerates, and adds that the eye of the experienced judge is worth all the standards in the world, he highly depreciates the idea of a judge counting, according to the judgment he may

place on them, all the points of a fowl, and then coolly adding them up to find which of the pens had the greater number of points, arguing that the pens showing the larger number of points, if rewarded a prize, would after all be evidently a wrong decision. He says: "We have occasionally had to notice that birds which would have been clearly first according to the 'standard' were by no means the best in their class. The 'points' put them first, but somehow no one liked them." Admitting that better scales of points than the American may be arranged, no doubt with a view to the adoption of his own, he suggests the doubt, "whether an infal" 'ble 'standard,' which shall correctly deal with every case, can be devised, so subtle and intangible are some of the features which at once mark off a first-class bird from all its competitors, and which can be felt or seen much easier than they can be put on paper." Claiming no more for his own scales than that the results have been arrived at "by careful comparison and analysis," aided by the most eminent fanciers, whose decisions they actually embody, he further adds: "We still think, therefore, that the eye and judgment of the best judges will and must continue to be the final authority at poultry shows; using 'standards' as the name implies—chiefly as permanent canons to which, if correct, it may be expected that awards will in the mean conform, and especially not expecting that a book, however perfect, can enable anybody to judge fowls, as seems by some in both hemispheres to have been expected." In our next paper we shall give Mr. Wright's scales for judging at poultry shows.

Boiled Corn for Poultry.

In the breeding of poultry, as in all other pursuits, a little care and forethought invariably return an apparently disproportionate result. In the rearing of poultry, where the expenditure on each fowl is small and the material provided comparatively inexpensive, we are apt to overlook the small wastes which occur in the transformation of the different grains into poultry, but which aggregate quite a respectable sum.

The opinion that corn is very nourishing food for fowls is so universal that no further thought is given to the matter. If any one should suggest that corn would be easier of digestion if soaked or boiled, he would very likely receive the answer that corn was nothing hard to digest for birds, which swallow stones and other hard substances without detriment. A moment's thought, however, will convince that the mill-stones and the grist are very different things, and feeding hard grain, although not exactly like feeding the millstones with pebbles, bears a certain likeness to it. The trouble attendant on the preparation of food, if it is to be cooked, may indeed seem very disproportionate to the advantage to be derived from such a treatment, but in really little time need be spent, as before going the rounds of the nests, a little hot water may be poured over the grain, a tight cover put on the kettle, and the whole placed over the stove, where by the time your rounds are completed, the corn will have become steamed and mellow, and have lost none of its good qualities. Remember each hen has a certain amount of animal force to be expended every day in some direction, and the less she has to give to digesting her food, the more she will have to be expended in egg-producing. The advantages of the warm food in winter, when much food goes toward producing animal heat to withstand the cold, are twofold—from the direct action of the warmth, and the slower action of the food itself, to say nothing of the fact that the content produced by nourishing food will result in more eggs, for a hen thoroughly at home will lay many more eggs than a discontented one. We have performed the experiment ourselves, and know that feeding boiled corn does pay, and it is as a result of experience that we offer this plan to our friends.—*Farmer (Eng.)*

AN OLD GOOSE died at Danville, Va., in his ninetieth year, from drinking lye out of a trough.

TO AVOID all loss of manure from night-soil, it is necessary to have a barrel of dry, fine earth, or sifted coal ashes, near the outhouse, and daily sprinkle a few quarts into the vault.

Veterinary Department.

Diseases of the Horse's Eye.

Amaurosis

Amaurosis is a disease which is occasionally noticed amongst our Canadian horses, and consists in diminution or complete loss of vision without any visible alteration in the organization of the eye, and is due to either partial or complete paralysis of the optic nerve, or its terminal expansion, the retina.

Amaurosis is sometimes seen as symptomatic of other diseases, as in parturient apoplexy in cows, disease of the digestive organs, and it not unfrequently exists with cataract. It may also proceed from injury to the brain interfering with the special nerve of sight. The action of the optic nerve is also impaired by allowing horses to stand for a lengthened period in very dark stables. We have met with several cases of the disease in this city attributable to this injurious practice.

When amaurosis is independent of any other disease, the pupil is dilated and loses its elliptical form, and the eye has a glassy appearance; hence the term "glass eye," which is often applied to this impaired condition of the optic nerve. The animal carries his head high, moves his ears quickly, and steers with high action.

If a strong light is brought to bear upon the eye, the pupil remains dilated, thus showing that the nervous influence is lost. Treatment is generally of little avail if the disease has existed for a length of time.

Bleeding Fungus (Fungus Hæmatodes.)

This formidable and malignant disease of the eye is happily of rare occurrence in the horse. These tumours are generally rapidly developed and are exceedingly vascular. In some cases they may result from injury, but usually proceed from constitutional disease.

In an early stage of the disease the pupil is dilated, and the interior of the eye has a yellowish appearance, caused by the growth of the tumor in the posterior part of the eye; the growth extends and presses upon the cornea, rupturing that membrane, and very soon attains an enormous size. We have met with cases where the fungoid growth extended half-way down the cheek, giving the poor sufferer a most ungrainy and loathsome appearance. In the treatment of these cases it is necessary to use the knife freely; the whole tumor and eyeball must be carefully removed and the parts afterwards dressed with caustic. In some cases the hemorrhage is very great, and it may be necessary to apply the actual cautery which, as well as arresting the bleeding, also tends to destroy the malignant growth.

The new Epizootic.

Last Friday Mr. James Harkness and Veterinary Surgeon Swift visited President Grant's farm, near Kirkwood, for the purpose of examining and treating some horses belonging to the President, several of which have died. The following description of one of these cases was furnished for publication:—

A young filly, nine or ten weeks old, she was found lying down with the near hind leg swollen to an incredible size, the swelling extending from the stifle upward. There was complete loss of sensation in the limb, and mortification had actually taken place from the hock down. The case being hopeless, the little one was soon dispatched, and the post mortem examination commenced. To any one unaccustomed to such sights this would have been one of marvel and disgust. The abdomen being laid open, nothing very unusual presented itself, except that the peritoneum afforded evidence of constitutional derangement.

Another long incision brought the scalpel to a large abscess (we will call it antrax) lying under and immediately to the left of the vagina. This antrax contained over one quart of the most purulent pus, and was, or seemed to be, about the size of a large

breakfast cup. A probe was now brought into requisition and passed along a sinus extending downward; this sinus being laid open to the end, another antrax was discovered larger than the first, and like the first containing a large amount of matter. The case becoming interesting, although filthy, it was determined for the benefit of science and the community to pursue the investigations as long as any new feature arose. The different layers of muscles were most carefully dissected, and as regularly as these layers of muscles did occur, so did these interstices of pus. We are now speaking of the internal muscles of the thigh. Amongst the external muscles small antraxes were occasionally discovered, but the real seat of the disease, if we may judge from local appearances, was from the inside of the stifle to the pelvic region. Here the periosteum bone and marrow were evidently locally involved in the poisonous nature of the disease. One feature which should not be omitted, was that twenty minutes after death the blood and serum had both separated and coagulated with their respective properties, so that there was no blood flowing throughout any part of the operation. That this disease is antrax fever of venæ, the above gentlemen have no doubt. As to its fatality there is ample evidence; and that it is of a most malignant type, we have the opinion of Drs. Kueckhann, Van Studdiford, and F. G. Porter, who are all of opinion that inoculation with matter from one of these cases, would be, beyond a shadow of a doubt, fatal in the human species.

Mr. Harkness has a distinct recollection of a former outbreaking of this disease, when not only were horses affected, but also cattle. He also states that the two men who were engaged in skinning these horses both died from the effects of inoculation.

[We clip the above extract from the *St. Louis Times*. The post mortem appearances mentioned show that intense inflammatory action had taken place in the parts affected; but without (judging from the description), we cannot see any reason why the disease should be called an epizootic. The appearances presented in all probability were the result of some local influence, and we do not consider there is any danger of such an affection spreading. A few isolated cases of various diseases are frequently very much exaggerated, and therefore have a tendency to create an unnecessary alarm.—*VET. ED.*]

A YANKEE paper has discovered that hogskin and cowhide bags hold ten times as much corn as canvas bags do, and cost only about one-tenth as much to get to market. The corn should be put into the bags before the skins are taken off the animals.

THE BRAIN OF A HORSE.—We find the following in the *Scientific American*—The brain of a horse seems to entertain but one thought at a time; for this reason continued whipping is out of the question, and only confirms his stubborn resolve. But if you can by any means change the direction of his mind, giving him a new subject to think of, nine times out of ten you will have no further trouble in starting him. As simple a trick as a little pepper, aloes, or the like, thrown back on his tongue will often succeed in turning attention to the state of his mouth.

THE *Obispo Herald* states that a new and somewhat novel danger has appeared in the Lennoxton district, against which farmers and cattle breeders should be warned. A young quoy which had been grazing on the farm of Baiglass died suddenly under mysterious circumstances. A post mortem examination revealed the fact that the animal had been feeding extensively on the fragments of rifle bullets, and had actually been poisoned by the action of the lead, a dozen pounds of which were found in its stomach. The unfortunate beast had been grazing near the ground where the butts of the 4th and 7th Stirlingshire Rifle Volunteers are erected.

FEED ON HORSES.—The *Journal of Chemistry* gives the following simple recipe for the prevention of flies on horses:—Take two or three small handfuls of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night, and next morning pour the whole into a kettle and let it boil for a quarter of an hour. When cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable let those parts which are most irritable be smeared over with the liquid, namely, between and upon the ears, the neck, the flanks, etc. Not only the lady and gentleman who rules out for pleasure will be benefited by this, but the coachman, the wagoner, and all others who use horses during hot months.

Correspondence.

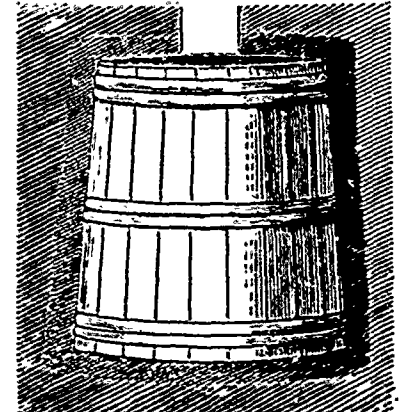
The Hydraulic Ram.—Rain-Water Cistern.

(To the Editor of the CANADA FARMER.)

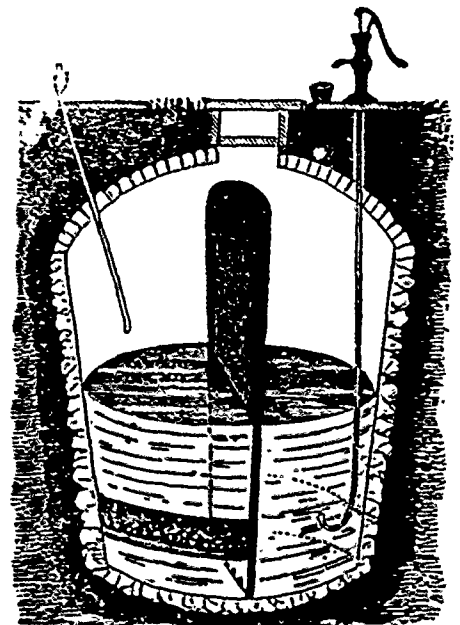
SIR:—Your prompt reply to "A new Subscriber" in the last number of the CANADA FARMER encourages me to ask your advice as to the best method of constructing a rain-water cistern. I have a large wooden tank—or "stand" as it is sometimes called—of sufficient capacity to hold about thirty-five barrels, with the hole dug and ready to receive it, but I am told by some that it should be "set" in cement or mortar, whilst others maintain that a bedding of clay is quite sufficient. I have read somewhere of a filter constructed inside the cistern which struck me at the time as being an excellent idea, but I have not now the slightest recollection where I saw it. Any information you may give on the subject will be thankfully received.—Yours, &c.,
M. McL.

Peel, August 20th, 1874.

[The hole for the reception of the tub should be made a few inches deeper and wider than the dimensions of the tub itself, to admit of a three or four inch layer of clay-mortar at the bottom, into which the tub should be firmly bedded. The space round the sides may be packed with clay, clay-mortar or cement, as represented by the dark shading in fig. 1.]



A simple and efficient method of constructing a filter within a cistern was explained and illustrated on page 285 of the CANADA FARMER for 1867. It is as follows:—



A single brick wall is built up the middle of the cistern, dividing it into two compartments,—fig. 2. Spaces are left between the bricks at the bottom of the partition, to allow the water to flow from one side into the other. Close to the bottom of one compartment a filter is constructed by laying over a

frame of scantling and boards (not close of course) a coarse woollen or other cloth, and on this a layer of gravel; over which should then be laid alternate layers of sand and charcoal. This forms an efficient filter. The water will percolate through it readily, pass through the openings at the bottom of the wall, and rise on the other side to a level with the fluid on the receiving side. The water thus filtered is perfectly pure, and furnishes the most wholesome beverage that can be used.

A simpler method of constructing the filter, in which the porous wall itself is made to answer the purpose without any apparatus below, is recommended by Mr. Wilkinson. He says:—

"The best filter is a wall of soft bricks across the cistern, of four inches, or the width of a brick, laying up the filter-wall in cement mortar, but without plastering on either side. Such a filter will operate effectually for ten or fifteen years, and should it ever require to be cleansed, all that is necessary is to change the suction pipe to the receiving side of the cistern and pump out the water rapidly, which will cause the water to flow back from the filtered into the unfiltered side, and it will carry with it all the sediment in the pores of the bricks, and effectually cleanse the filter, making it as good as new."

Orchard Grass.

(To the Editor of the CANADA FARMER.)

SIR:—In the spring of 1873, I sowed half a bushel of orchard-grass seed, mixed with clover and timothy in a corner of one of my fields. It has turned out to be all that you claimed for it. It comes early in spring; grows quickly after being eaten off; the cattle are fond of it, and now, when the other part of the field is burnt and brown, it is fresh and green. Still there is one very serious objection to it and, that is, the cost of the seed. At this present time it is three dollars and fifty cents per bushel, and at two bushels to the acre, costs seven dollars. This puts it out of the reach of men who, like myself, own small farms. Seedsmen may say—"It is no fault of ours that men own small farms, we must have our profits." I believe in men having reasonable profits; but I see in a New Zealand newspaper, of date July 7th, 1874, an advertisement offering the same seed at twelve shillings and sixpence sterling per bushel, "fresh importation from England." Now, if New Zealand seedsmen can afford to sell it at three dollars per bushel after importing it fourteen thousand miles, surely our Canadian seedsmen could sell it for less after importing it only three thousand miles.

In the CANADA FARMER of August 1st, there is an advertisement—"To Farmers. Dynamite for blasting stumps, &c. Young & Miller, sole agents in the Dominion;" but neither the city nor street where their place of business is situated is given.—Yours, &c., S.

[The omission is supplied in our present issue.—Ed. C. F.]

Agricultural Shows.

SHOWMAN will find the dates asked for among the following:—

Provincial Exhibition—Toronto, Sept. 21 to 25, inclusive.

Western Fair—London, Sept. 29 and 30, and Oct. 1 and 2.

Central Exhibition—On 15th to 18th Sept., both days inclusive, at Guelph.

South Waterloo—29th and 30th of Sept., at Galt.

North Waterloo—On Tuesday and Wednesday, 13th and 14th October, at Berlin.

Wilmot—New Hamburg, Oct. 5th.

Centre Wellington—On Friday, 2nd October, at Fergus.

North Wellington—On Friday, the 9th October, at Drayton.

North Riding Oxford—Woodstock, Oct. 6 and 7.

North and West Oxford—Ingersoll, Sept. 22.

Blenheim—Drumbo, Sept. 25.

East Oxford—Oxford Centre, Sept. 15.

Welland—Welland, Thursday and Friday, 1st and 2nd of Oct.

H. L. Y., Richmond, P. Q.—Send us a model or photograph of the machine, with full explanations, and we shall be better able to express an opinion on the subject.

A LOWER LINE QUEBEC CORRESPONDENT WRITES: Please inform me and others, through the CANADA FARMER, the price of the honey extractor and where it is to be had, as I think such a machine has not yet been introduced into New Brunswick, and if it is of any value, we would like to have it.

THE CANADA FARMER

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AT

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THE CANADA FARMER is stereotyped, so that copies of back numbers can always be had.

A limited number of advertisements are inserted at twenty cents per line for each insertion. There are twelve lines in one inch of space. Advertisements under ten lines are charged as ten line advertisements.

All letters and money orders are addressed to THE GLOBE PRINTING CO., TORONTO.

Agents wanted in every town and village in the Dominion to canvass for subscribers. Liberal commission allowed. Send for circular stating terms.

The Canada Farmer.

TORONTO, CANADA, SEPTEMBER 1, 1874.

One Satisfied Farmer.

Under this head the *New England Farmer* published some time since an interesting bit of family history which will be read with pleasure and profit; it is from an octogenarian, dated "near Buffalo, N. Y." Having learned a trade in boyhood (though born on a farm near Boston), he worked at it until, in 1834, he concluded to "go west" in search of better fortune. A journey of fifteen days brought him to Buffalo, and in the winter of 1835-6, he purchased 130 acres of land at \$25 per acre, which, as it was a time of general inflation, was regarded an extremely high price. He paid \$200 down, and borrowed money to make a further payment in the spring. He writes:

The farm was mostly woods, with a poor log house; about fifteen acres cleared and fenced, and about three miles from the village. Not a very inviting residence. I took possession in 1836; hired a man and set him to clearing, fencing, &c. During the following winter I got off some wood and timber. About this time the great bubble burst with a tremendous crash, and business all closed up. I waited patiently till the spring of 1838, but nothing turned up for me. I was not quite ready to encounter the cares of the new home, being all unacquainted with farm life, but after looking the subject squarely in the face, decided to make the attempt, though not without some doubt and misgiving. But necessity overcame all objections, for which I have ever been thankful; and I proceeded at once to build a small shell of a house, 18 by 26 feet, enclosed with good sound matched boards, without plastering or paint. My wife contrived to paper neatly, with the various kinds of newspapers, which answered the double purpose of keeping the cold out and educating our children. We were now about to take possession of what we expected, in due time, to make a comfortable home; yet, under the circumstances, the outlook was not very encouraging. Our family consisted of myself, 44 years old, wife, 40, and five children—the eldest a daughter about 18, three sons and an infant daughter, not a very formidable force to begin with, on a new farm. My capital was small, not exceeding \$500 in cash; a credit always available, when wanted; furniture sufficient to make us comfortable; strong, willing hands, and a young, growing family. I hired a man, took off my coat, and went to work in earnest.

The year previous, I had made some little progress in clearing, fencing, &c., which, by the way, cost \$15 to \$20 per acre. Our first available cash crop was 100 cords of wood, at \$1.12 1/2 per cord, and what little could be retailed in the village at \$1.25. Oak

timber, but little, however, of that, at from \$70 to \$80 per cubic thousand—very little money in either, after paying expenses.

The first permanent improvement was a "bank" barn 40 by 100 feet, with stables under the whole. Next, a good, substantial stone house, suitable for all purposes of comfort and convenience. In 1848 to 1850, I had paid up the first purchase and bought thirty acres adjoining, for which I was to pay \$25 per acre, which was paid in due time. About this time, my eldest son became of age, and proposed looking for something better. He did so, and spent several months, and returned fully satisfied, and went to work, with the understanding, if the boys wanted farms, our united efforts would be more available than separate. This was all the arrangement made with my sons, who were expected to remain at home and take their chance on the farm, and here commenced our co-operative farming. We then had four sons, the second studying for a profession, the third, fourteen years old, who was expected to remain on the farm. In 1852 and 1853, we had made good progress, and were getting on quite well. In August, 1853, we were checked by the burning of our barn, with all our wheat, hay, and most of our farming tools. Here I would remark that, in addition to our former capital, a windfall came into the family of \$2,000, which assisted in rebuilding the barn, which we commenced at once on a more approved plan, 56 by 76 feet, with basement stables for some thirty head, and good root cellar. Now, as opportunity offered, from this time to 1857, we purchased 410 acres of land, for which we were to pay some \$21,000. This for a time insured a tax of \$3 per day interest. The next purchase was a house and lot in the village, for \$1,200; then a little more land that adjoined us, which we coveted and purchased; then, from 1861 to 1865, we bought 171 acres more, which cost about \$11,000, and was the last purchase of real estate.

In 1866 my sons were both married. The younger settled in his new home, which cost about \$7,000, and the eldest took possession, in the spring of 1867, of his building, estimated at about \$10,000. It now became necessary to make a division, and we proceeded to do so, with the following result. The farm on which we commenced in 1838, contained 130 acres. Previous to our division we had sold 15 acres, for which we received an advance of about \$700.

We had added by purchase, 610 acres, making in all 740, for which we had.....	\$26,775
paid, a fraction less than \$80 per acre	
Permanent improvements, buildings, &c. on homestead.....	7,000
For the first son married and settled about.....	7,000
For the other, in spring of 1867.....	10,000
Loss by fire.....	4,000
Educating two sons professionally.....	3,000
Two substitutes for army.....	1,400
House and lot in village.....	1,200
Stock and tools.....	4,000
Cash on hand, permanent improvements, &c.....	4,200
Total.....	\$52,475

Now for the result as far as the boys are interested. They have performed their part faithfully and perseveringly to the end, and should be well paid. They leave for their new homes with good warrantee deeds for 560 acres of choice land, with all fixtures and appurtenances thereto belonging, stock, tools and well and handsomely located, worth at least \$75,000.

If my sons, when they became of age, had wanted and obtained situations as clerks in some respectable, well established business, they should have received for their services, each, \$3,500 per year, to have balanced their receipts from the farm, and then they would not have had comforts and privileges as at home, with few exceptions, besides the exposure and influence of city life, and probably been no better, if so well educated for the common business of life. Now let the boys who are looking forward to that end, remember that nothing really valuable can be obtained without well directed, persevering effort, and that a well developed brain is very essential to that end; that mother earth always pays liberally and promptly for well directed labor, and that seed-time and harvest have never failed.

As the subject of temperance is being so fully and freely discussed, I will say that in early life I adopted the motto, "taste not, touch not, the unclean thing." When I commenced farming, I was told that harvesting could not be done or a building raised without its use. I have, however, done all my harvesting, raised several large barns, some of them requiring the services of 100 men, and carried out all our operations on the farm without its use, to the fullest extent.

I am aware that some of my brother farmers may be a little incredulous as regards my statements, without some further explanation. I would say that our forests were disappearing, so I was induced to

purchase large quantities of heavy woodland, on which was a very good business opportunity suitable for building purposes and for lime, all of which we made available for both purposes. We converted some 400 or 500 acres of this timber into cord-wood, &c., and from 1854 to 1863 put into market from 1,000 to 1,500 cords yearly. We cleared and cultivated as we proceeded, and in so doing we kept as many men and teams as would pay, all the time. Our winter crop was the most productive and profitable, yet the farm furnished the means and results, as before stated. Now, as I am about to bring my long, rambling story to a close, I will only add that in this record of my farming operations, I have endeavored to show results and not particulars and that a good practical mechanic, in middle life, might change his business, if he has a desire and taste for farming, and in the end be successful. As a whole, he is better qualified, can plan, lay out and execute better.

I have raised good crops of the various kinds, and some not so good. In 1863, I had ninety acres of wheat which promised a large return, but after threshing six days, with ten horse-power, I got only 600 bushels. If the mill had had it alone, the best threshing should have yielded more than 2,000 bushels. Here we were short \$3,000. The straw from forty acres, seventy-three tons, sold for \$750. But similar losses happen since to all, and what but farmers will feed the insects and birds.

Bush Fires.

The bush fires which have been raging for some weeks in various localities appear to be somewhat abated, but are still burning with a fury. In the neighborhood of Brussels in what is known as Knechtel's Swamp, the devastation is complete, and the fire at last accounts was rapidly approaching the village. Every possible means are being used to check the progress of the devouring element, but should the wind rise the probability is that the village must succumb. In the neighborhood of Fergus, a number of farm buildings have been burned, in addition to the immense loss sustained by the destruction of crops, fences and timber. Large fires are also reported in the vicinity of New Hamburg and Kincaidine, and at Petersburg station a few evenings since, two hundred cords of valuable cord wood were destroyed. Fourteen houses and barns are reported as having been burned in them township. The fires in the Ottawa district continue. The country for miles has been devastated, and in some instances the farmers narrowly escaped with their lives. The city was in some danger for some time, but recent heavy rains have had a good effect, and all danger is now over.

The Prices Obtained for Young Bulls.

The following extract from a correspondence in the *Country Gentleman* was written by one of the most successful breeders of Short-horn cattle in the country:

The sales of a few weeks past have demonstrated that the Short-horn interest is covering a large amount of territory, and that it is local, existing in the vicinity where the sales are held, and that each one a new set of local bidders are seen and many purchases are made by them. The great difference in the price of bulls and cows is commented on by some as a bad one—an anxious breeder, with the remark that there are too many of them, and that they should be castrated, &c. I think quite the reverse, because where the animal is well enough bred with form color, &c. sufficient to make his good enough to go to the head of a Short-horn herd, it is the exception for him to bring prices that cannot be afforded by his breeder. This is as it should be, for unless he is a combination of all that is good he should take his rank among the high grades and common cows of the farm.

Almost any breeder can take a desirable cow or heifer with advantage into his herd at a reasonable price—hence they are customers at the sales, with ideas educated up to better prices than novices. Not so with bulls, they (the breeders) are sellers, not buyers. The young and cheaper class of bulls then find customers among the farmers, who can always use them to good advantage on their native and grade cows, and not being educated as to the real advantage in their use, do not pay at first what should be paid for such stock, but having once used a Short-horn bull they are sure to be better customers for ever afterwards.

Even across the Central Illinois there is scarcely one good Short-horn bull to a township, while there should be one within a short distance of every farmer's cows, if not on every farm, and this will answer

the question of the number being too large. Who can say then that it is not better to put the young bulls up at public sale and sell them, though they do not bring so large prices at present as we would like, to have them at work as missionaries, bringing money into the farmers' pockets who use them, and thereby making them better customers to all future sales, than to have them bottled up in our barns waiting better prices.

The Farmer of To-day.

This is what is said of him (it sounds like Joseph Harris) in the *Agriculturist*: "Altogether, the farmer has his hands full. He needs an active brain in an active body. If he has good health the work should not discourage him. He will pull through. He should not get excited; he should not worry. He should keep cool; and the best way to do this, in more senses than one, is to keep steadily at work. Work will clear the mind and cool the body. But it should be energetic, spirited work, not slow, plodding drudgery. The work should be directed by the wind and be given with a will. It is such work that tells. Few of us realize how much the character of farm work has changed. It is better to run a mowing machine than to swing a scythe all day, but there are men who are not happy unless they are engaged in some hard steady work. They have not patience enough to manage a machine. They are mental sluggards. They want a machine to put itself together, to tighten its own bolts, to be self-sharpening and self-oiling. Such men are born brewers of wood and drawers of water. They will not make successful modern farmers. The farmer who has his mower, reaper, unloading tork, self raking and self-binding reaper; who cuts feed, turns the grain, sows, and pumps water by wind or horse power, who plows his corn with a drill, does it with a harrow, cultivates within an inch of the rows, cuts up the crop, and husks it with a machine is a very different man from the old farmer, as he exists in the mind of the novelist or poet. We believe in farmers and in farming. There is not as much isolation on a good farm as in a large city. There is no lack of excitement or of mental stimulus. We have not time to be dull. The seasons are too short and the work too pressing. We are in a hurry to harvest our crop that we may sow the next. We live in the future, and if we aim to improve our farms and our stock, we can yearly see sufficient evidences of real progress to feed our hopes and encourage us to continue our labors. Farming is slow work, but we are building on a solid foundation, and are reasonably certain of our reward. Let us brace our minds with hope and continue the good work. The prospects for good farmers in this country were never more encouraging than at the present time."

It will be seen from an advertisement in the proper column that the Hon. George Brown announces his annual sale of the thorough-bred shorthorns and Berkshire pigs, to take place at Bow Park on Tuesday the 13th of October. The animals to be offered this year will be greatly superior to any yet sold at Bow Park.

VICK'S FLORAL GAZETTE.—The fourth number of this useful and popular little publication is before us, full as ever of choice reading matter and handsomely illustrated.

FARMING IN IRELAND.—S. L. Lyman, in the *Rural Sun*, says that the farmer of a large estate in Ireland has a long lease generally on the land, for which he pays about \$150 an acre, amounting to say £500 a year. Fourteen field hands, one overster and twenty-one gardeners are employed the year round. One thousand large sheep are kept on such a farm, their wool 6 inches long. Flax is also raised for home supply; the lady of the house superintends the manufacture and making up of the flax and woollen fabrics, aided by the maiden daughters and female servants, who supply all hands with all the clothing required for decency and comfort, so that boots and hats are the only articles that are bought from middlemen. The writer says: "The rotation of crops in Ireland, of a farmer of a large estate, is precisely as follows: Suppose a field of three hundred acres, properly prepared for tillage, planted the first year with potatoes in the second year prepared for wheat or barley; in the third year for oats sown broadcast, in the fourth year for peas. The fifth year, the same field left untilled, the grass grows spontaneously, and a proper piece for grazing one thousand sheep for many years to come is opened. So the land in Ireland is in fair tillable state at present, as it has been for a thousand years."

Education in Europe.

An Italian journal contains some interesting reports as to the educational condition of different European countries:

In Saxony education is compulsory, all inhabitants of the kingdom can read and write, and every child attends school.

In Switzerland all can read and write, and have got a good primary education. Education is obligatory, and greater efforts, in proportion to its means, are made to impart primary instruction than in any other European nation.

In all the smaller states of North Germany education is compulsory, and all the children attend school.

In Denmark the same is true. All the Danes, with a few exceptions, can read, write and keep accounts. The children all attend school until the age of fourteen.

In Prussia almost all the children attend school regularly, except in some of the eastern districts. An officer who had charge of the military education of the Landwehr, in twelve years had only met three soldiers who could neither read nor write. An inquiry having been instituted, it was found that these three were the children of sailors, who had been born on the river, and had never settled in any place. Instruction is obligatory.

In Sweden the proportion of inhabitants who can neither read nor write is one in a thousand. Instruction is obligatory.

In Baden every child receives instruction; and in Wurtemberg there is not a peasant or a girl of the lowest class, or a servant in an inn who cannot read, write, and account correctly; every child goes to school, instruction being obligatory.

In Holland public assistance is taken away from every indigent family that neglects to send its child to school. It is estimated that the number of illiterate is three per cent.

In Norway almost all the Norwegians can read, write, and account passably well. Instruction obligatory.

In Bavaria, among 100 conscripts, but seven whose education was incomplete or entirely wanting, were found. Instruction also obligatory.

France, with its twenty-three illiterate conscripts in a hundred, comes next, and is followed by Belgium, Italy, Austria, Greece, Spain, Portugal, Sardinia, Wallachia, Russia and Turkey, in the order named.

John Johnston's Farming.

Very few have not heard something about the management of one of the best farmers in America—John Johnston, of Geneva, N. Y. He is a Scotchman, and now eighty-three years old. He is doing but little at farming now. Mr. Geddes, in a late article in the *New York Tribune*, speaks of Mr. Johnston's methods of farming to show how lands may be made very productive. Wheat he always considered his paying crop, and other crops were grown with a view to promote the yield of wheat. When he had a field of good clover in the spring, as soon as it got as large as could be ploughed into the ground, he would commence his summer fallowing. During the following he would spread great quantities of manure on the poorer places in the field. If this land was not needed for any other crop, he would again summer fallow the year after the wheat was cut, and thus take a crop of wheat every two years from the same land, and by the free use of clover and plaster and yard manure he constantly increased his crops of wheat.

To provide his yard manure, he would purchase sheep in the fall and feed them during the winter on straw, hay, corn and oil-cake meal, and sell them to the butcher in the spring. Sometimes he fed as many as a thousand at once, calculating that if he realized the market value of his corn and hay, and got his pay back for the oil-cake meal he bought, he did very well, and had full compensation in the manure, though he never failed but once in making a handsome direct profit on his sheep. In talking over his methods he will constantly dwell on the importance of barn-yard manure, but still few men have used clover more than he did.

It must be remembered that Mr. Geddes thinks more of clover as a fertilizer than he does of manure. —*Det. Tribune*.

IMPORTED STALLION.—Mr. Dalziel, of Chesterfield, arrived at Guelph last Saturday morning, from Scotland, with a beautiful bay stallion. Mr. Dalziel goes annually to Europe—this being his twelfth trip across the ocean—and of the many animals imported by him we believe this to be the best. The horse is in good spirit and looks fresh, the voyage having been a more than usually pleasant one.

Agricultural Intelligence.

LIVE STOCK SALES.

Joint Sale of Messrs. G. L. Burruss & Son, and W. W. Reynolds, Carrollton, Illinois.

This sale came off on the 6th ult., and resulted as follows:

PROPERTY OF G. L. BURRUSS & SON

Cows.

Table listing various cow breeds and prices, including 1st Duchess of Logan, Prather & Foster, Springfield, etc.

Bulls.

Table listing various bull breeds and prices, including Lord of Sangamon, Ches. March, Moawequa, etc.

Summary.

Summary table for the first sale, showing 17 cows and heifers, 11 bulls and b. calves, and 28 head.

PROPERTY OF W. W. REYNOLDS

Cows

Table listing various cow breeds and prices, including Ahee, Prather & Foster, Lillian, F. O. Morriwether, Shipman, etc.

Bulls.

Table listing various bull breeds and prices, including Aerxes, John Turner, Butler, Proctor, N. Kendall, Whitehall, etc.

Summary.

Summary table for the second sale, showing 12 cows and heifers, 5 bulls and b. calves, and 17 head.

A number of Berkshire pigs, the property of L. S. Eldred, were disposed of at prices ranging from \$10 to \$70 per head.

Short-horn Sale of Mr. Claude Matthews, Clinton, Indiana.

This sale was held on the Fair Grounds, Terre Haute, Ind., on the 13th ult. We clip the following sale list from the Country Gentleman.

Cows and Heifers.

Table listing various cow and heifer breeds and prices, including Sallie Trimble, 13 yrs., Dr. W. C. Ryce, Bluff Creek, etc.

Table listing various bull breeds and prices, including Duncan's Airdrie, 5615, 10 yrs., J. C. Cook, Newport, etc.

Summary.

Summary table for the third sale, showing 23 cows and heifers, 6 bulls and b. calves, and 29 head.

Sale of Messrs. William Stevenson & Sons, Jacksonville, Illinois.

The attendance at this sale was large, and the thorough-breds brought fair prices. The grade cattle hogs and sheep went at poor figures.

Cows.

Table listing various cow breeds and prices, including Rosebud, 5 yrs., Prather & Foster, Springfield, etc.

Bulls.

Table listing various bull breeds and prices, including Jubilee Duke, 6 mos., Collett, Vermont, etc.

We clip the following items from the North British Agriculturist.

AN ENGLISH SHORT-HORN HEIFER FOR AMERICA.—We are informed that Mr. Craig, from Canada, has purchased the fine roan heifer "Waterloo I," two years and six months old, from Sir W. C. Trevelyan.

THE KINNELLAR HERD OF SHORT-HORNS.—Mr. S. Campbell, Kinnellar, Aberdeenshire, whose cow, Goldendrop, exported three years ago, has been, with her progeny, very popular in America.

SALE OF AN ENGLISH SHORT-HORN BULL.—Mr. Thomas Easton, Torry, Dunfermline, has purchased one of the finest yearling Short-horn bulls of his day, from the breeder, Mr. R. Jefferson, Preston Howes, Whitehaven, Cumberland, for Mr. Snell, Ontario, Canada.

A CLYDESDALE mare, exhibited at a recent agricultural fair at Stirling, Scotland, was sold, for exportation to America, for the sum of \$2,000.

SALE OF CLYDESDALES AT INVERNESS SHOW.—Mr. Leitch, Inchtellie, Forres, sold his ponderous bay stallion, Johnnie Cope, to Mr. Drummond, Blacklaw, Dunfermline, at 400 guineas. The animal has been resold to go to Canada.

GRAND PRICES FOR WEST HIGHLAND CATTLE.—At the Highland Show last week some sales of the ancient native breed of cattle were made at prices which compare favorably with those current for Short-horns, extravagant as the latter were.

THE SITTITON HERD OF SHORT-HORNS.—Mr. Cruickshank, Sittiton, Aberdeenshire, has sold from his celebrated herd within the last few weeks twenty Short-horn heifers and one bull, all for export to America.

LORD STRATHMORE'S CLYDESDALES AND SHROPSHIRE.—There are few finer studs of Clydesdales or flocks of Shropshires than are to be seen on Lord Strathmore's home farm at Glamis, Forfarshire.

A REMNANT OF THE EARNHILL HERD OF SHORT-HORNS.—Only two or three remnants of the Earnhill herd of Short horns, dispersed two or three years ago, have been in Mr. Harris's possession for some time.

THE UPPERMILL SHORT-HORNS.—Mr. Marr, Uppermill, Aberdeenshire, who has taken more prizes at the national show the last two years than any northern exhibitor of Short-horns, and whose herd is growing in excellence as well as numbers, sold his cup bull at Aberdeen to Mr. Cran, Kirkton, Inverness, for 200 guineas.

THE SANDHOLE SHORT-HORNS.—Mr. Stewart, Sandhole, Fraserburgh, who has reared some good Short-horns in recent years, has sold the five-year-old massive, strong loined, excellent quartered bull Alliance, bred at Sittiton, and the second prize winner at Stirling last year, to Mr. Tolmie, Balsparine, Fort-George, at a high price.

THE EARL OF FIFE'S POLLED HERD.—The very handsome three-year-old polled Angus bull which, this year and last, gained for the breeder, Mr. Bowie, Mains of Kellie, Arbroath, the first prizes at the Highland Society's shows, has been secured for the valuable and now all but invincible herd owned by the Earl of Fife at Duff House home farm, Banff.

MR. W. WILSON, formerly of Balquhain, Alford, now of Hill House, Hoddlesdon, Herts, has gained the cup and first prize, value £15 15s. for the best thorough-bred stallion at the East of England Great Horse Show.

THE KIRKTON (INVERNESS) SHORT-HORNS.—Mr. Cran, Kirkton, Inverness, exhibited three Short-horn cows and a heifer with creditable success, as noticed elsewhere, at the Inverness Show, and he sold the four for nearly 500 guineas.

At the Highland Show last week some sales of the ancient native breed of cattle were made at prices which compare favorably with those current for Short-horns, extravagant as the latter were. The first-prize two-year-old Highland bull shown and bred by Mr. Stewart, Bochastle, Callander, was sold to Mr. Stewart, Duntulm, Skye, for 200 guineas.

The Harvest.

The crops in the vicinity of Victoria Harbor are the best for some years. — *O'Neill's Packet*

The crops around Arthur never looked better than they do this season, and a few more days will put them beyond all danger of frost, which has proved so fatal around here in past years. — *Frejus News Record*.

The crops are now mostly secured, and, what rarely happens, even the farmers themselves acknowledge them good, which may be fairly regarded as implying more than is expressed. — *Markham Economist*.

The barley crop in Mill Point sections is now ripe, is being harvested, and is the best ever raised on the Bay of Quinte. The kernels are bright and plump, and weigh over 50 lbs. to the bushel. — *Belleville Ontario*.

The crops in old Prince Edward never looked better, fruit is good and plentiful, apples are ripening, some have been taken to market and commanded a high figure. Wheat, rye, barley, oats, and root crops are excellent. — *Napanee Banner*.

Grain is being harvested in splendid order, and gives promise of a good yield in this section of country. Fruit will be a partial failure. Few apples, comparatively, and no plums worth speaking of. Root crops need rain. — *Brampton's Standard*.

Harvesting has made great progress during the past week throughout the counties. The hay crop has been nearly all secured, while fall wheat and barley have also to a large extent been got in. The country everywhere looks beautiful, and the farmers were never in better spirits. — *Cornwall Gazette*.

Our harvest, upon the whole, will be the best that we have had for years, and it is being gathered in in splendid condition. Already several loads of fall wheat and barley have been brought into market, and our produce men may look out for a heavy busy season, and we feel confident that they will be prepared for all that comes. — *Harriston Tribune*.

The spring crops around Seaford have a very fine appearance. Flax will make an excellent yield. Hay, which had made a poor appearance at first, will give more than an average return, while spring wheat, oats, peas, &c., will be almost too heavy. The farmers have ceased complaining of anything except that irremediable bug. — *Huron Signal*.

The crops in this district are splendid. I was down the road a piece on Monday, and called to see Mr. Mentz, a settler who came in here last fall. He has now six acres under crop—two acres of corn, two acres of oats, and two acres of potatoes. The corn I measured, and it is nine feet high. The potatoes I examined carefully, and I never in my life saw such large ones, or such a heavy yield. You have no idea whatever of his potatoes; they are simply marvellous. — *Gooderham's Free Beacon on Independent*.

The long continued drought had parched up everything, and the late crops were suffering badly until partially relieved by the rain, which fell rather sparingly on Thursday morning. Farmers were beginning to look blue over the prospects of the root crops, and horticulturists in this vicinity have given up all hopes of saving their cabbages, which are being in many cases entirely destroyed by the midge and worm. The grain has been safely housed, except late oats, and a plentiful shower of rain would be of great benefit to the late crops. — *Cobourg Sentinel*.

From all parts of the country we hear the most gratifying accounts of the promising condition of the crops. The farmers are now actively engaged in cutting down their hay, which is unexpectedly heavy this season. The only kind of cereal in which there is a drawback is the oat crop, which, owing to the backwardness of the season and the inclemency of the weather, will, it is feared, fall far short of an average. The potato crop promises an excellent yield, and on the whole our farmers are jubilant over their gains and have almost forgotten the gloomy prospects of last spring. — *Cape Breton Advocate*.

In the neighborhood of Paris the grain harvest was finished fully ten days ago, with the oat crop, which was also secured in good condition, though a little shrunk from the effects of the heat. Many of our leading agriculturists have finished threshing, as Mr. Coleman, who completed threshing as far back as 7th August. Sixty three acres of barley yielded 2 1/2 bushels of beautifully plump and bright grain, or nearly 34 bushels per acre. The fall wheat (30 acres) yielded fourteen bushels to the acre. We

have not heard of the result of the spring or oat crop yet. The yield of hay on the Coleman farm this year has been 400 tons. — *Transcript*

The hay crop in Bright is about finished and all housed in good condition. It will be upon the whole above an average. Spring crops look excellent, and a heavy yield is anticipated. Fall wheat will exceed early prognostications, where it is sheltered it will yield heavily. Root crops look promising. Farmers in Burford are busy in the harvest. Crops are looking splendid, and there will be an average yield. Winter wheat on heavy land is not very good, but on light soil the yield will be more than an average. The crops surrounding the village of Burford do not look very promising, but as some of us do not depend on the farm for support, we are not so much troubled as might be supposed. The pea crop, which looked the best, is threatened with destruction by the blackbirds, which alight in great flocks on the fields. — *Woodstock Review*.

The wheat crop is threatened with serious damage from the weevil. We have heard frequent rumors to that effect recently, but were rather chary about giving them credence. The statement is now confirmed by a farmer in the eastern part of Canada, who says that the early ravages of this worm lead to grave reflections as to the probable results of the attack of this very destructive pest. An abundant crop of hay has been secured in West Zorra. Fall wheat harvest has commenced. It is much better than was at one time expected. Spring crops look very promising. Harvesting operations are progressing satisfactorily in this country, and the promise of abundant crops in spring grains seems likely to be realized. Even fall wheat with many is turning out better than was anticipated. With good grain crops and a favorable season for cheese, Oxford ought to be in a prosperous condition. — *Hamilton Times*.

Hay in the neighborhood of Carronbrook is a fair average crop. Those who ploughed up their fall wheat in the spring now regret it, as it is much better than they expected. All the spring crops are very promising so far. The potato bug is hard at work, but it does not seem quite as bad as other years. Altogether there is every probability of a good average yield of crops this year. The spring crops are looking splendid; they have seldom looked better. A good deal of the fall wheat was ploughed up, but those who let it stand have little reason to regret it, as it has grown wonderfully, and will be nearly equal to a full crop of spring. Hay is pretty well in, and in fine condition. It is a very fair crop. Notwithstanding the ravages of the bug, potatoes are looking pretty well. Turnips and mangolds are doing tolerably thus far. Spring crops in North-East Hope township, so far look very well. Fall wheat being "frost-killed," there is not much of it, but what remained untouched will bring an average yield. Although clover in Wellesley was nearly all destroyed by the frost of last spring, still timothy is a fair crop, and farmers generally are going to have more hay than they had expected. The weather for haying has been fine, and hay as a whole has been well saved. The prospects of an abundant harvest are still as good as ever. The late fall wheat is considerably rusted, and consequently will be somewhat damaged. The potato bug is still committing its ravages, but potatoes will be plentiful for all. — *Stratford Beacon*.

The farmers of Dalton are very busy just now in housing their grain harvest. Crops are unusually good in this township this year—much above an average. The hay has all been well saved, and is also more than an average crop. Farmers in Hartley are very busy now making hay while the sun shines. Crops of all kinds are going to be very heavy this year. The hay crop is above the average, and the spring crops never looked better. The fall wheat is also good, and almost ready for the cradle. The crops are splendid in the Dunsford section. The hay is all in. The crop has been very large—the largest known for years; and it has been saved in excellent condition, the weather having been unusually favorable. Oats are remarkably abundant. Fall wheat is far beyond expectations, and will be a large crop. There is an abundant supply of good hay around Burry's Green this year, the crop this season being one of the best we have been favored with for years, and the pleasant haying weather for some time past has given the farmers an opportunity of securing an excellent crop in good condition. The fall wheat at present presents quite a speckled appearance, on account of its being winter-killed, and in consequence is ripening very unequally. It will, however, in general be a good crop. The other grain crops, including barley, oats, and peas, will, from present appearance, yield a large return. This season has been very favorable to the growth of roots. — *Lindsay Post*.

Of fall (or white) wheat, of which there was a larger average sown than last year, the season last fall being favorable for putting the seed into the ground, several fields were badly winter-killed, owing to the light fall of snow during the winter, and the dry, cold winds, which are very prevalent in the early spring, farmers fearing from these causes that the crop would be a total failure; but the very favorable weather which has prevailed during the summer months seems to have amply made up for any backwardness ensuing from the above causes, and although some low fields have suffered from rust, the crop will be more than an average one in quantity and quality. The weather has been exceedingly favorable for harvesting, and the crop has been secured in good condition. Too much cannot be said of our barley crop. An average breadth was sown, and the season from the commencement has been favorable both for growth and harvesting. Consequently we have one of the best (if not the best) crops of this grain that has ever been gathered in this neighborhood, the yield being about one-third more than the average, heavy in weight, and bright in color. Spring wheat promised one of the largest yields we have had for several years, but we regret to learn that along the front the weevil has done considerable damage in the early sown fields, though we have heard no complaints from the back country. Late sown spring wheat has escaped and looks well. This season thus far has been favorable for securing this crop. Oats and peas promise an abundant yield, fully one-third more than an average. — *Port Hope Times*.

Crops in the Maritime Provinces.

We clip the following statements from the *Colonial Farmer*:

New Brunswick

MASSIAS-DUTTON.—Wheat, where the land was in good condition, looks splendid; where the land is poor, it looks the reverse of that.

Oats generally look well, and there is a promise of a good crop.

Hay—a light crop, and below average.

Potatoes improving. The wet spring was much against them, and considerable seed rotted in the ground.

Roots, should the weather be favorable, may yet be a good crop.

The apple crop will be deficient owing to the previous high winds during the time they were in blossom.

The crops sown last spring when the land was wet, particularly on heavy soils, is a sufficient testimony of the folly of sowing land in that condition. Not only is the grain poor, but if laid to grass it will prove a failure. This fact has been patent for years past. Labor-saving machines are getting very popular here. The clatter of the mowing machine—five years ago the folks would have thought a person crazy who proposed to buy one—is now heard in all directions, while horse rakes, horse forks, and other implements are seen everywhere. All farmers should have them.

Nova Scotia.

AMHERST.—The potato crop promises fair on dry land, but on low land it is a failure owing to the constant rain in June.

Hay is abundant, but will be much damaged. Oats and barley will probably be above an average. Early wheat is very promising; Indian corn is very little raised, and not promising on account of the coldness of the season. The root crop looks well; the apple crop will likely be above an average; and cherries and other fruits are not so good as last year. Haying is late, not half secured yet, and the weather is very bad at present, but we had one good week at the commencement of the season.

Prince Edward Island.

NORTH RIVER.—Francis Blair writes that the spring being backward, farm crops are a little late, but they all look well. The statement may read as follows:

- 1st, The prospect of the potato crop is good.
 - 2nd, Hay turns off heavy.
 - 3rd, Oats are luxuriant.
 - 4th, A large breadth of barley has been sown, and looks well.
 - 5th, Wheat never promised better.
 - 6th, We don't grow Indian corn.
 - 7th, Turnips give promise of a large crop.
 - 8th, Apples and all fruits are poor and scarce, even for a poor fruit country like this.
- Haying is rapidly progressing throughout the Island, but the weather is not favorable, and the crop will not be so well saved as it was last year.

For many years past it has been difficult to obtain a crop of early wheat on account of the ravages of the midge, but last year was a pleasing exception, and taking courage, many farmers sowed a larger breadth than usual this spring, and will be rewarded with a bountiful harvest of superior grain.

The Barley Crop of 1874.

Henry A. Homeyer & Co., of St. Louis, writes as follows concerning the probable yield of the barley crop of 1874:—

California—large crop and fine quality.
New York State—quality good; yield fully an average.

Canada—Better in quality and quantity than any crop of the last four years.

Ohio and Indiana—Winter barley good quality but light in berry; hardly an average crop.

Kansas and Nebraska—Sound and bright, but rather light in weight, three-quarters of an average crop.

Missouri and Southern Illinois—Very little sown; bright and light.

Iowa (northern part)—Fair crop in quality and quantity, average No. 3, and somewhat below an average in yield.

Minnesota—Good quality and bright, two-thirds to three-quarters of an average crop.

Northern Illinois—About the same as last year.

THE CROPS ON THE CONTINENT.—The *Economist Francaise* states that in Belgium the wheat is of excellent quality. In Holland the case is the same. In Northern Germany the harvest is not yet begun, but the yield of wheat is not likely to be more than an average. In Southern Russia the crops have turned out very well, and there will be a large surplus of wheat for exportation.

HARVEST OPERATIONS are general in Jersey and Guernsey, and many crops have already been gathered in and safely housed. The long continued drought which lately prevailed, while it considerably affected the root crops, proved very favorable to the wheat, and the results are seen in a most abundant harvest. In Jersey especially these are manifest in the great length of the straw and the extra size and fullness of the heads, much of the former being 5 ft. 6 in. high. Agriculturists state that no such crop has been seen for the last 20 years. About 1854 a similar heavy crop was gathered. At that period scarcely a drop of rain fell from the sowing of the seed till harvest time.

THE CROPS IN INDIA.—The Calcutta correspondent of the *Times* says:—"The Lieutenant-Governor informs me that in Eastern Bengal the rice crop is excellent, and that the autumn harvest generally is safe in Bengal, Behar, and Orissa, with probable reduction of prices beyond previous expectations. He considers that the winter crops, however, are uncertain, and dependent upon the September rains. The number of persons receiving charitable relief is increasing, but relief labor has been further reduced. Advances and sales of Government grain are still made freely when needed. The Viceroy and Sir Richard Temple met at Dacca, and will confer at various parts of Eastern Bengal."

THE FIRST BALE of the new cotton crop was received at Galveston, Tex., on July 25.

INTERESTED parties out west are inquiring if it is possible to train Chinamen to eat grasshoppers.

CHILDREN were taken up and carried some distance in the streets of Aberdeen during a recent thunder shower.

ONE HUNDRED AND TWENTY-FIVE TONS of cheese were shipped from Belleville to Liverpool on the 5th ult.

MOST of the prairie land west of the Red River near the settlement belt, is now settled upon by a first-class lot of Ontario farmers who are breaking up large tracts for next season's cultivation.

THE DATE of the Provincial cheese show has been changed from October 6th and 7th, as at first announced, to September 30th, and October 1st and 2nd, in conjunction with the Belleville Fair.

A YOUNG LADY in Germantown put a piece of wedding-cake under her pillow, and went to bed with the happy belief that she would dream of seeing her future husband. That evening, however, she had eaten two plates of ice-cream, about a pint of strawberries, several sweet cakes, and two large pickles, and now she says she would rather remain single all her life than marry the man she saw in her dream.

STIRLOIN steak in Boston is 33 to 35 cents per pound, in New York it is 25 to 30, in Philadelphia 25 to 28, and in Washington 25 to 40. In Iowa, before it is starved, beaten and banged in cars and pens, the best steaks are from 10 to 12 cents.

THE MENNONITES.—Mr. Hespeler, who accompanied the Mennonites to their reserve in the Northwest, reports that they are exceedingly well pleased with the land selected for them. They at once set to work digging wells, and at other things incident to pioneering.

A DISPATCH from Atchison, Kas., Aug. 10, says: "The grasshoppers have literally devoured everything in northern and southern Kansas and Nebraska. The damage inflicted on vegetation is far greater than in 1866. The corn crop throughout all this region is totally destroyed."

AN IOWA HYPOCRITE.—A Grinnell, Iowa, citizen has lately taken to wheeling the baby around—as folks suppose. A young lady recently met him and insisted on seeing the "little darling." She only discovered a jug of beer which he had taken this novel way to get home.

ON MONDAY morning, about one o'clock, a large cheese factory, owned by Messrs. Chamberland and Logan, situated on the river near the Rapid du Plat, about three miles above Morrisburg, was discovered to be on fire, and in a short time, with all the contents, was completely destroyed, nothing being saved. The loss is about \$3,000; no insurance.

NEW WARMING APPARATUS.—The Russian Mennonites settled in Nebraska have introduced a novel heating apparatus in their houses. It consists of a large furnace, with a long crooked flue constructed of masonry, the whole adapted to straw as fuel. Large doors open direct from the furnace into the rooms adjoining. Fire is to be kept up an hour or two in the morning, and it is estimated that the masonry of the furnace and smouldering embers will retain heat enough to maintain warmth all day.

THE Huron Expositor was shown a few days ago a stalk of barley on which were four separate and distinct heads. The main head was fully as large as an ordinary sized barley head, and out of it was growing three other heads, each of which would measure over an inch in length. This stalk was taken from a field of four acres of the same kind on the farm of Mr. William Matthews, First Concession of Ashfield. Mr. Matthews obtained the seed from the Old Country about three years ago. It yields nearly three times as much grain as ordinary barley.

THE Columbus Inquirer, having completed its inquiry into the state of local social science, presents the following report, which is as vividly drawn as one of Dor's pictures. "A sorry sight it is to see a spike team, consisting of a skeleton steer and a skinny blind mule, with a rope harness and a squint-eyed driver, hauling a barrel of new whiskey over poor roads, on a hermaphrodite waggon, into a farming district where the people are in debt, and the children forced to practise scant attire by day and hungry sleeping at night."

THE SEASON has again arrived when threshing machine accidents are of frequent occurrence, and one of the most horrible ever recorded happened in Elderslie yesterday. The machine was in operation on the farm of Mr. D. McGill, and Mr. James Parker, who was assisting, most imprudently stepped on the cover of the cylinder. The cover had become worn by the constant friction of the sheaves, and the weight of the man broke the thin board, letting his leg into the teeth of the machine, which was going at a high rate of speed. Of course the foot of the unfortunate man was torn to fragments in an instant. Drs. Reilly and Baird were sent for, and the bleeding and mangled limb amputated. What the chances of recovery are we have not heard.—*Paisley Advertiser*, 14th.

NEWS ITEMS BY MAIL.—Mark Twain announces that he and one Barnum have leased the comet, and proposes to fit it up with 1,000,000 state-rooms in the tail (with hot and cold water, gas, looking-glass, parachute, umbrellas, etc., in each), to make a grand excursion among the stars. It will travel at the rate of 20,000,000 miles and upwards per day, according to the weather. Every arrangement is to be made for the comfort of passengers, and stops will be made at interesting points on the way. The fare is to be \$2 for every 50,000,000 miles of travel, and the comet starts on the 20th, and will return on the 14th of December, 1991, which is "at least forty years quicker than any other comet can do it in. Complimentary round-trip tickets have been tendered to General Butler, Mr. Shepard, Mr. Richardson and other eminent gentlemen, whose public services have entitled them to the rest and relaxation of a voyage of this kind.

THE COTSWOLD RAM SALES.—These great annual sales in the Cotswold part of England have just been held, and have, as usual, attracted buyers from various parts of the world, in addition to those from the neighborhood and from a distance. There is no falling off whatever in the quality of the sheep sold, but the want of keep and other circumstances have tended to reduce the prices below those of last year.

WE CLIP the following from the *Chronicle* of Aug. 10th, in relation to thorough-bred Short-horns for California: "We have been here fifteen days, attending the annual auction sales of Kentucky thorough-bred Short-horns. Seven hundred and thirty-three head have been sold of all ages, amounting to \$232,624—an average of \$317.50 each. Buyers from all parts of the world have been here. We have purchased 109 head extra choice bulls and heifers, and leave to-night for *that's country* (California). Yours, ROLLIN P. SAND & BRO. Paris (Kentucky), August 1, 1874."

SEED WHEAT CIRCULAR.—Mr. Wm. Rennie recently handed us a circular containing information about different kinds of seed wheat for sale at his establishment, prominent among which is the "Seneca," of which it is said: "The Seneca is a white wheat with red chaff, smooth-headed, and the best of the wheats experimented with, being fully equal to the best brands of the cultivated California wheat. As it proves early, hardy, less liable to be winter-killed than any other varieties, has a stiff straw, and yields large crops on every variety of wheat soil, 52 bushels per acre having been gathered, it is without doubt the best white wheat now cultivated, yielding from five to ten bushels per acre more than any other wheat on the same ground." Price \$3 per 60 lbs.

PRESS CARRIER PIGEONS.—One of the most curious incidents connected with modern journalism is the regular employment of carrier pigeons in collecting intelligence for the daily and weekly newspapers. In the competitive exertions to procure the "Latest Intelligence," it has been found that for short distances newspaper reports can be sent readier, cheaper and quicker by press carrier pigeons, flying a mile per minute, than by postal telegraph. A pair of these birds, a few days ago, brought dispatches from Paris to a lonely spot, congenial to their nature, in a wild and rocky part of Kent, within 10 miles of London in 1½ hour. Press carrier pigeons took the dispatches on to the city, the whole distance from Paris to London, by actual parcel mode of conveyance, being done within 1½ hour!—*Land and Water*.

WE NOTICE that Mr. William Rennie, proprietor of the agricultural warehouse and seed store, has, in consequence of adjacent premises recently occupied becoming inadequate for his business in a general supplies generally, removed that establishment to the corner of Adelaide and Jarvis Streets. The present building is both commodious and conveniently situated. It is pleasing to observe that, under Mr. Rennie's able management, the effort to furnish the farming community with their various requirements has been so successful. Mr. Rennie's success is attributed to a practical knowledge of the farmer's requirements, supplying what is most suitable for his customers, keeping on exhibition a large selected stock, and recommending according to actual merit. Farmers are appreciative of the value of such an establishment. Parties interested will, we believe, get amply repaid for a visit to this establishment when they are in Toronto.

AN ARMY OF RATS.—If bright eyes and smooth fur are points of annual beauty, a rat should not be an object of disgust and aversion; but when the rat appears "in his thousands," he certainly inspires the greatest possible loathing in the human breast. The notion of swarms of rats running over each other to reach some hapless victim, and forming a seething mass instinct with hunger and thirst, is one ever present to sufferers from nightmare or students of historical novels. These unfortunate persons should avoid Paris, for, if we may believe some statistics lately published of the number of rats in that metropolis, the "joyous city" is a complete rat's nest. 30,000 were killed last year in the Central *Halles*, 190,000 in the Market *Halles*, 120,000 in the slaughter houses, 40,000 in the butchers' shops, 300,000 in the grocers' shops, 900,000 in the tanners' yards, 110,000 in the canals—a total of 1,790,000, to which sum must be added about 3,000,000 rodents which elude capture, so that Paris boasts of a standing army of something like 5,000,000 rats. Some idea may be formed of the magnitude of this loathsome host from the fact that if a procession of Parisian rats running ten abreast were to start from Paris to Berlin the vanguard would reach the German capital while the rear guard was issuing from the gates of the French metropolis.

Breeder and Grazier.

Feeding Value of Indian Corn.

The corn crop is our chief dependence for fattening all kinds of stock, from a chicken to a steer. We feed it in the most indiscriminate manner and under all conditions and circumstances, and in nearly all cases unground and uncooked. That our methods of feeding are anything but economical must be admitted. The English farmers are more careful and feed with far greater economy. If they did not they could not manage to exist. It is well known that feeders of stock in England have never placed a very high value upon Indian corn to feed alone, and Mr. Horsfall has lately made some analysis, from which he concludes that it is unsuitable for feeding alone to growing stock.

He gives the composition of corn as follows: Oil, 7 per cent; starch, sugar, etc., 60; nitrogen 2.25; phosphoric acid and potash, 36. The albuminous compounds required to furnish 2.25 per cent. of nitrogen would reach nearly 14 per cent., which leaves about 18 per cent. for water and indigestible matter. From the above he concludes that Indian corn is rich in fattening rather than flesh-forming properties; and he might have added also, or milk producing properties. The very small percentage of mineral indicates that alone it is unsuitable for growing stock, or for milk.

In the *Journal of the Royal Society* are published experiments by Mr. Lawes on feeding pigs, the result of which was that corn meal fed alone was not satisfactory. The report of the experiment says:

"One of the pigs gained more than two pounds a day during the first fortnight of the experiment, but the other two only about half as much. It was observed, however, before the end of the first period, that this fast gaining pig and one of the others, No. 3, had large swellings on the sides of their necks, and that at the same time their breathing had become labored. It was obvious that the Indian corn meal alone was in some way a defective diet; and it occurred to us that it was comparatively poor both in nitrogen and mineral matter, though we were inclined to suspect that it was a deficiency of the latter rather than the former that was the cause of the ill effects produced. We accordingly determined to continue the food as before, but to try the effect of putting before the pigs a trough of some mineral substances, of which they could partake if they were disposed. The mixture which was prepared was as follows: Twenty pounds of finely sifted coal ashes, four pounds common salt, and one pound superphosphate of lime. A trough containing this mixture was put into the pen at the commencement of the second period, and the pig soon began to lick it with evident relish. From that time the swellings, or tumors, as well as the difficulty in breathing, which probably arose from the swellings of the former, began to diminish rapidly, and at the end of this period were very much reduced and at the end of the third period had disappeared entirely. Notwithstanding this serious drawback, it was found that the animals were satisfied with less of this food, though so poor in nitrogen in proportion to their weight, than, with one exception, any of the others; and it will be found that the increase is satisfactory when compared with the food consumed."

The conclusion is that when this grain can be bought for from 1s to 5s. (sterling) per quarter under grinding barley, it will be worth notice. Lately prices have ruled high. Up to £5 a ton it is a reasonably cheap food, which may be used in combination with other substances. Thus our neighbors talk across the water; and we may profit by their conclusions. We believe that every intelligent feeder knows very well that a mixture of food is better for both growing and fattening stock than corn alone, though their practice in this particular may not correspond with their convictions.

TREATMENT FOR CURB.—The *Live Stock Journal* says. Clip the hair from off the entire surface of the enlargement, and then apply a mixture of hog's lard, 4 dr.; cantharides, 1 dr.; bismuthide of mercury, 1 dr.; and spread a thin coating of the above over the part and rub in for fifteen minutes, then tie the animal so as he may not bite or rub the curb, at the same time give as much rest as possible. On the third or fourth day apply a little lard or sweet oil if a nice scab has formed.

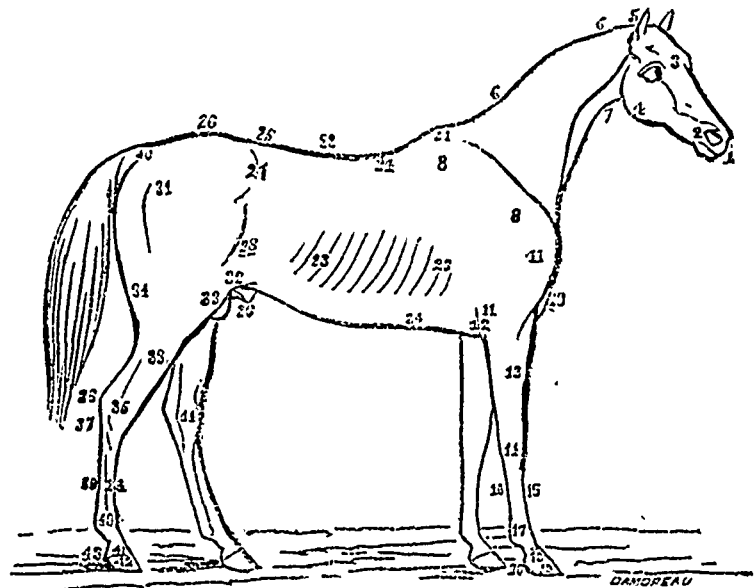
The Anatomy of the Horse.

(To the Editor of the CANADA FARMER.)

SIR:—I read with much profit and satisfaction the articles which appear from time to time in the "Breeder and Grazier" and "Veterinary" departments of your valuable publication, and it has frequently occurred to me that a drawing illustrative of the various "points" mentioned by veterinary and

other writers would be very useful for reference, more especially to beginners like myself. I am informed that such a drawing—of the horse, if I mistake not—appeared in the CANADA FARMER some years since. If so, would you kindly reproduce it for the information of _____ A YOUNG FARMER.

The cut referred to by our young correspondent appears on page 49 of the CANADA FARMER for 1870. Here it is.



HEAD.

1. Muzzle.
2. Nostril.
3. Forehead.
4. Jaw.
5. Poll.

NECK.

6. Crest.
7. Thropple, or Windpipe.

FORE-QUARTER.

8. Shoulder-blade.
9. Point of Shoulder.
10. Bows, or Breast.
11. 11. T. to arm.
12. Elbow.
13. Forearm (arm).
14. Kneecap.
15. Cannon bone.
16. Back sinew.
17. Fetlock.
18. Coronet.
19. Hoof or Foot.
20. Heel.

BODY, OR MIDDLE-PIECE.

21. Withers.
22. Back.
23. Ribs, (forming together the barrel or chest.)
24. 24. Girth.
25. The Loin.
26. The Croup.
27. The Hip.
28. The Flank.
29. The heath.
30. The root of the dock or tail.

THE HIND QUARTER.

31. The Hip joint.
32. The Stifle joint.
33. 33. Lower Thigh or Gaskin.
34. The Quarters.
35. The Hock.
36. The point of the Hock.
37. The Curb place.
38. The Cannon bone.
39. The back shew.
40. Pastern or Fetlock joint.
41. Coronet.
42. Foot or Hoof.
43. Heel.
44. Spavin-place.

Causes and Cure of Quarter-Evil in Calves.

One of our correspondents was lately deploring his losses from quarter-evil, and asking counsel thereupon. I too have been a sufferer, but latterly, from some cause, it has quite left me. This I in part attribute to careful feeding, more particularly to the use of salt in the food. I believe the wild cattle of the prairies travel many miles to the salt licks, which would seem to show that, without extraneous assistance (and Mr. Bunge's recent experiments substantiate the fact), there is not sufficient soda in their diet to counteract the quantity of potash. Now it has occurred to me that this inflammatory fever may be in some cases produced by the paucity of soda in the blood. Can it be so?—A SOUTHERN FARMER. [Common salt is a very essential article of food; none of the higher animals do well without it, some sorts of food containing it in limited amount are greatly more palatable and healthful when salt is added to them. As pointed out by your correspondent, many wild animals instinctively seek salt as if it were a necessity of life. Boussingault many years ago made some interesting experiments regarding the dietetic value of common salt. Mr. P. Dun, in his "Veterinary Medicines, their Actions and Uses," gives the following abstract of these experiments.—"Six cattle, as equal as possible in weight and appearance, were selected and fed in exactly the same manner, except that three received each 12 ounces of salt daily, whilst the other three got none. In about six months the skin and hair of those without salt became rough, dry, and staring, presenting a striking

contrast to the smooth, silky coats of the others, which though not much superior to their neighbors in weight, were more lively and of so much better appearance that they brought a somewhat higher price. The cattle receiving salt exhibited throughout much greater appetite and relish for their food, consumed it in a shorter space of time, and also drank larger quantities of water" (p. 491). Careful reiterated observation has led good managers of every description of farm-stock to keep a portion of rock salt in the rack crib, or feeding box. It is especially a valuable addition to cooked or steamed food, and for animals recovering from acute disease. But important as salt undoubtedly is as an article of diet, its absence in the dietary does not appear to produce symptoms resembling those of quarter-evil. The animal becomes dull and unthrifty in its coat, but even in cases where for experiment the animal has been purposely kept on food containing as little salt as possible, no symptoms have been produced of congestion, which is the prominent condition of quarter-evil. Indirectly either soda, potash, or other saline substances appear to counteract the tendency to quarter-evil, probably by maintaining in some way, not very easily explained, a healthy condition of the blood, and further promoting an active state of those important purifying channels—the bowels, skin, and kidneys. The chief reliable knowledge at present possessed regarding the causes of quarter-evil is that consisting of a form of blood-poisoning; it is brought on by the retention in the circulating fluids of some noxious material, probably elaborated from some rapid tissue change. It is very notorious that quarter-evil most frequently attacks well-thriving cattle or sheep which a few weeks previously have

from any cause sustained a check. Weaning, castration, restricted supplies of nutritive food, exposure to cold, or overcrowding, may prove the cause of arrested growth. Sometimes it happens that the check is so slight as to be inappreciable except to the careful, skilled observer. It is a week or two after such a pinch, whilst the starved textures are probably being recruited, that the symptoms which are recognized as congestive fever or quarter-evil are established. So rapidly does the disease run its course that remedial treatment is almost useless. Successful prevention is effected by insuring the young animals continuous, steady thriving, avoiding especially what is popularly entitled a "hunger and a burst." A small daily allowance of linseed cake, conducing greatly to healthy progress, and keeping both skin and bowels in good order, is deservedly vaunted as a preventive. Many good authorities advise setons or rowels in the dewlap, insert them when the calf is two or three months old, and believe that the slight irritation produced favors the formation of fibrine and helps to antagonise congestion. But setoning, although well worthy of adoption, will not prevent losses from quarter-evil amongst calves that are irregularly fed or otherwise badly managed. In a herd, where calves have already been suffering from the complaint, the survivors demand anxious watching. They should have a fair daily allowance of linseed cake. If at all disposed to costiveness, a dose of castor oil or of mixed castor and linseed oil should be given. A seton should be put in the dewlap. With a little gruel, milk, or ordinary water, it is worth while to give two or three doses every week of sulphite of soda and chlorate of potash. About half an ounce of each salt will suffice for a six-months-old calf.—*N. D. Agriculturist.*

The Paces of the Horse.

This subject has been discussed by many correspondents of the *London Times*, in connection with Miss Thompson's picture of the "Roll call," in the Royal Academy's exhibition. We take the letter of Mr. Fleming on the subject as terminating the controversy:—

I think there can be no dispute as to the natural paces of the horse being the "walk," "trot," and "gallop;" and that "ambling," "pacing" or "running" are artificial or acquired movements. Neither can there be any reason to doubt that walking and trotting are essentially distinct paces, and are not performed in the same manner. This any one may ascertain by riding, observing a horse moving at these paces, or to some extent by listening to the sounds of the feet on a hard road. It is certainly correct to state that in walking and trotting the movement of the limbs is diagonal, the left or near fore, and the right or off hind leg being on or off the ground at the same time at a certain period. But here the similarity ends, for at the walk a foreleg (say the left) commences or "leads," and is followed by the off hind in such a manner that when the first has attained its maximum elevation the latter is only half raised; so that the forefoot is placed on the ground and half raised again when the hind foot reaches the earth. At the trot the diagonal fore and hind limb are raised and planted together—not after each other, as in the walk; so that in the latter pace it may be said that, at a given time, three of the horse's feet are on the ground, while in the trot there are only two. The beats of a sound horse's feet in walking are rhythmically as "one, two, three, four," and in trotting "one, two."

In the trot there is not much difficulty in observing the movement of the limbs, owing to their bipedal succession. In the walk, however, for the reason stated, it is almost as impossible for the inexperienced eye to follow them as it is to follow three or four metal balls which an expert juggler quickly throws from hand to hand.

A FAMILY PONY.—"Yesterday," says a southern Colorado paper, "we saw a man, a woman, a good-sized boy, two babies, five or six blankets, a buffalo robe, and two sets of chili on a single pony. Every available man from his ears to the root of his tail was taken." The poor animal was very small; thin as a towel rack; of a sickly pale color; and one fore leg was about 5 inches shorter than the other—the knee joint of that leg was very large, and we supposed that the missing part of the leg was driven in there by the weight above, so that when it was relieved the leg would stretch out again like a turtle's head. In fact, nearly all his legs were short, and the crookedest convention for legs that we ever saw. Taken altogether, it was the most amusing horse and load we ever saw. Incredible as it may seem, the wiry little animal passed us on the trot."

The Apiary.

Bees, Birds, and Grapes.

Under the above heading, Mr. J. W. Bayard, of Athens, Ohio, contributes an important article to the August number of the *American Bee Journal*. He produces incontestable evidence that bees do not pierce or puncture fruit of any kind, but that after birds have done this, bees are quite ready to help themselves to the saccharine juice and pulp. He gives an interesting narrative of what passed in the village where he resides, during the season of 1872. It was a severe time of drought, and fruit was extensively ravaged by birds and bees. It was at first suspected that the bees were the worst depredators, and an ordinance for their expulsion from the city limits passed a second reading by the Council. At this juncture, Mr. Bayard invited the municipal authorities to witness the issue of some tests he had been preparing for them. A lot of robins, red birds, and orioles, which Mr. Bayard had shot, lay dead among the vines and fruit trees. These were opened, and their crops found full of grape and other fruit seeds. Three hives of bees had bunches of ripe grapes hung at their entrances, close to the passage-way traversed by the bees. Not a grape had been punctured, though the bunches had been hanging five days. Then Mr. Bayard opened with his pen-knife say a quarter of the berries on each bunch, and the bees at once began to gather up the juice. In about forty-eight hours they had carried away all the luscious contents of the opened grapes, and four days afterwards the remaining berries were still untouched. He showed that hornets do much mischief in the way of opening fruit. Birds and hornets are few compared with the bees. They do their work and glide away unnoticed, while the bees, tarrying to carry off the juice, are supposed to be caught in the act. The result, so far as the village of Athens was concerned, was the acquittal of the bees, and the final settlement of a greatly vexed and long disputed question in bee-keeping.

The Industry of Bees.

"How few bee-keepers know the worth of their own stock—the value of their own servants! No writer can get near enough to touch the hem of the garment of the industry of honey-bees. It is beyond our comprehension or description. Fancy a large and prosperous hive, full of combs, bees and brood; fancy 20,000 little grubs in this hive requiring constant attention and proper food, and all receiving them in due season; fancy the care and diligence of the bees in mixing and kneading this food before they give it to their young; fancy 2,000 of these grubs daily requiring and receiving beautiful lids on their cells to cover them up while they pass into the insect form and chrysalis state; fancy 500 or 1,000 square inches of this brood being built up every three weeks. Try these combs in the scales against a 25-lb. weight, and see which conquers. Stand and look at that bee-hive, and remember that all therein goes on with unerring exactness and without light; then think of the untiring energy and perseverance of the bees outside the hive—ranging fields and woods from morn till dewy night, gathering up the sweets and pollen of flowers, storing the one in sacks, the other in baskets, returning to their home laden as donkeys with panniers, increasing their honey stores in weight from 2 lb. to 6 lb. per day, securely locked up after it has been twice swallowed and disgorged, and thus made into honey proper. Yes; think of all these things being done, together with nameless and countless offices performed every hour, and methinks you will be dumb with amazement at the industry of these wonderful bees. What a world of wonder is in a bee-hive! Bony wee bees! your own fanning wings will drive from your hive scores of tons of the sweat of your labors ere the imagination of the poet or pen of the historian can compass your industry!

Without any pretension to accuracy, and anxious to be within the facts, we may say that the daily consumption and waste of a large and prosperous hive

of bees in the summer time is more than 2 lb. To repair this waste, upwards of 2 lb. of materials have to be collected every day. Beyond this there is often accumulated honey to the amount of 4 lb. and 6 lb daily in favorable weather. Once, and only once, have we known 20 lb. weight gained by one hive in two days."

NOTE BY EDITOR.—Strange and incredible as it may appear to the uninitiated, the above paragraph from *The Scottish Farmer* rather underrates than overrates the marvellous activity of bees. Besides the labors enumerated, there is the collection or manufacture of propolis, or bee-glue, by which all crevices in the hive are filled, the frames fastened, and various repairs effected; also the removal of larvae that occasionally wriggle out of the cells, drop to the floor of the hive and die; then there are the duties of guarding, ventilating, tracking and expelling the moth miller, driving out and slaughtering the drones at the proper time, and a variety of house-keeping offices. Bee-keepers who have used the extractor, have often known more weight gained by one hive in a single day, than our Scottish contemporary chronicles as having been accomplished in two days. In one instance, Mr. Hosmer, a Minnesota bee-keeper, obtained upwards of fifty pounds from one colony in a single day. This, however, was unusual. The stock of bees was very large, and it was the height of the linden season, in a locality plentifully supplied with that richly-yielding honey tree. Dr. Watts immortalized the industry of the bee in his poem for juveniles, commencing

"How doth the little busy bee
Improve each shining hour;"

but he never dreamed of the fact that they improve each hour whether it be a shining one or a dark one. They not only "gather honey all the day," but labor incessantly all the night. Go to a hive at what hour of the night you will, in the working season, and you hear the hum of a busy and unceasing industry. Examine a hive at evening, at midnight, or at the cock-crowing, and its inmates are hard at work—wax-making, comb-building, food-preparing, larvæ nursing. This incessant activity accounts for the short duration of bee life during the working season. The entire population of a hive is changed within three months. Not for themselves but for others do these busy insects toil. It is either for a coming generation of bees, or for their too ungrateful owner, man. The discipline as well as industry of the hive is wonderful. Gangs of workers are detailed for the different operations of bee industry, and the various forces are so distributed as to keep all going on with systematic and duly proportioned progress. Verily a bee-hive is in itself a little world of wonders!

Bee Hunting.

For the benefit of others who may wish to engage in the exciting sport of bee-hunting, we give a few directions for finding the abode of wild bees. Go as far from the tame bees as possible, as wild bees are seldom found in their proximity. Your outfit should consist of some strained honey, a piece of comb, and a box or cup in which to catch the bees. Place the comb, containing some honey, on a stand where the movements of the bee can be seen, and then place upon the honey a bee from some neighboring blossom. When this bee has filled his sac, it will rise, describe a few circles, and take a bee line for the tree, in a few minutes returning with reinforcements. This operation is repeated, additional reinforcements arrive, until a hundred may go to work. The bee-hunter estimates the distance between the tree and the stand by the time the bees are gone from the latter, and by the number of bees at work on the honey. After a good line is established, obtain a cross line by moving the stand either to the right or left.

Later in the season, after the frost has killed the flowers, the bees are attracted by burning comb. For this a warm, still day is best. Supply a tin pail with some ashes and live, hard-wood coals; on this put bits of comb sufficient to make a good smudge, which will draw the bees to the stand in search of

honey, when they are lined as above. A few drops of the essence of arnica, dropped upon the comb containing the honey, will induce the bees to work more rapidly and increase much faster.—*Buffalo Live Stock Journal.*

GRANULATED HONEY.—The Jews of Moldavia and the Ukraine prepare from honey a sort of sugar which is solid and white as snow, which they send to the distilleries at Dantzic. They expose the honey to frost for three weeks, where neither sun nor snow can reach it, and in a vessel which is a bad conductor of caloric, by which process the honey becomes clear and hard, like sugar.—*Berlin.*

A LARGE INCREASE.—In the spring of 1870, J. W. Hosmer had ten stocks of bees. He bought seven more, and increased the 17 to 90, and took 400 lbs. of surplus honey. He wintered the 90 without the loss of a stock.

ARTIFICIAL SWARMING.—I choose good weather, with a plentiful honey crop, then I open the full stock and take out the queen and one full frame. These I put into the new hive and give it the old stand, moving the old hive a short distance away. This is done about 10 a.m., when a good share of the bees are out at work. Thus the new stock gets the benefit of a frame, a working queen, and enough workers to build up a good stock. The old stock is left with a hive full of combs and brood, and is in as good condition as though it had swarmed naturally.—*W. H. Nicholas.*

ANTS AND TOADS.—Common lye mixed with wood ashes, and spread around the hives, or around trees, will keep ants and toads away.—*J. Townsend.*

REMOVING EGGS.—I think the bees always move the egg when they rear a queen in what I call a natural queen cell—that is, a cell built upon the under edge of the comb for the express purpose of raising a queen. A queen never lays an egg in a cell of that kind. My opinion is that a colony or a detachment from a colony, suddenly finding themselves compelled to raise a queen, will select the freshest laid eggs (for they always start more than one) and the most roomy place—and if they do not find these two things in one place, they will put the egg where it is wanted. In such cases they build what I call an artificial queen cell—that is, one built on the side of the common worker brood comb, and not on the lower edge, as in the former case.—*S. A. Stillman.*

MEAD.—This liquor, made from honey, was the principal beverage of the ancient Britons, before the introduction of agriculture. It was the ideal nectar of the Scandinavians, who expected to quaff it in heaven from the skulls of their enemies. It was probably the liquor called by Ossian the joy and strength of shells, with which his heroes were so much delighted.—*Berlin.*

A GOOD LOCATION.—Bonner says, "I have often thought, had I exactly my wish where to set bees, it would be in a hollow glen with a large wood on one side, a large garden on the other, a white clover field in front, and a large heather mar, intermixed with a deal of whins and broom behind, with some wild mustard and runches to fill up the corners."

BEES AS A MEANS OF DEFENCE.—A privateer, with 40 or 50 men, having on board some hives of earthenware full of bees, was pursued by a Turkish galley manned by 500 men. When the latter came alongside, the crew of the privateer mounted the rigging with the hives and threw them down upon the deck of the galley. The Turks, unable to withstand the stings of the enraged bees, soon fell captive to the privateers.—*Abbe della Rocca.*

VARIETIES OF THE BEE.—Don Felix d'Azara, a Spanish traveller, describes several species of bees found in Paraguay, South America. One is double the size of the bee of Old Spain, and the smallest only one-fourth the size. But few had stings. The honey of the large bee was not good; that of another intoxicating, and another produced violent pains and convulsions, lasting sometimes 30 hours, without serious consequences.

BEES' OR WASPS' STINGS.—Spread over the part stung, a plaster of salad oil and common salt; if oil be not at hand, the salt may be moistened with water or vinegar. Another remedy is to keep the part constantly moistened with a rag dipped in sal-volatile and cold water, as strong as can be borne without raising the skin. Another antidote is everywhere available for it is nothing more than common soil applied to the wound. This remedy has often been tested with complete success, and it may be implicitly relied upon. The soil should be wet before being applied.—*New Facts.*

Miscellaneous.

Judging by "Points."

At the show of the Scotch Midland Agricultural Society at Kinross, a feature which had been looked forward to with some degree of interest was the competition for Lord Kinnaird's prize of £10 for Short-horns, cows or heifers, judged by points. His lordship solicited the services of three well-known judges of stock, who, believing themselves in the system, agreed to act. These were Mr James Whyte, Clintarty, Aberdeenshire; Mr Robert Bruce, Newton of Struthers, Forres; and Mr George Hedley, Newcastle-on-Tyne. They met Lord Kinnaird at Rossie Priory on Wednesday, the day before the show, and, after a full discussion, agreed upon a code and scale of 26 points, with an aggregate of numbers amounting to 200. The difficulty in fixing the scale arose from the fact of Mr. Hedley, who had written at some length on the subject, having given a scale at 55. The Scotch gentlemen desired a greater extension of numbers, but, ultimately coming to a mutual understanding, they fixed as mentioned. With a view to arrive at a clear operative conception of the plan laid out in their award paper, they adjourned to Castlehill, the Homo Farm, and there each, independently and separately, took to judging three of Lord Kinnaird's cows on the principle agreed on. They differed a very little on one cow, but as a whole they arrived at a pretty close approximation to each other, being within four numbers. Although Mr. Hedley was not confident as to the scale adopted, they were firmly decided on the justice of judging by points. In this spirit they went to the showyard, and entered on their duties without hesitation. An award paper was printed with the points and scale; and fifteen or sixteen animals were entered. Four of these were entered direct for the special competition, while the others were entered from other classes. Whatever was the reason, only eight of the number were brought before the judges, and of these one was disqualified at the outset, as its age was not given. After the seven had been carefully examined the prize was awarded to Bonny Belle, aged four years and a month, bred by the exhibitor, Mr. Thomas M. Tod, West Brackley, Kinross, which had also won in the off-hand judging the second prize. The second in order was a heifer, aged three years and twenty-five days, bred by Mr. Copland, and owned by Mr. Alexander Reid, Cruvie; and the third was a cow, aged three years, bred by exhibitor, Mr. Robert Husband, Gillot, Dunfermline. The cow belonging to Mr. A. Bethune, Belbo, which was selected for first honors by the previous judges, was rejected on account of her very uneven form and patchy hindquarters.—*Mark Lane Express.*

Meadow Lands.

A few days' travel throughout the great dairy region of the western reserve is sufficient to convince the casual observer that the meadows are badly managed. It seems strange that a crop so important should receive no more attention. Having seeded our land to timothy and clover, we mow and pasture, and mow, without seemingly a thought that the growth of this, the wheat field of the dairy-men, can be injured or impaired in the least degree.

The cows are turned out to graze during the dry weather of August until the roots are almost bare, and if perchance there is sufficient vitality left after the severe frosts of winter to give the grass a start, then the stock is turned on again to tramp around on the soft ground until hardly a vestige of vegetable life remains. This course is pursued for three or four years, and then we think it strange that the grass is all run out, and we are compelled to plough and seed again. It is not strange at all. The only wonder is that we are able to harvest any grass at all.

The same course pursued would kill out elders, briars, dock, and almost any other pest of the fence corners if we could only induce the cattle to perform their part of the work as thoroughly as they do with the grass crop. Now this is all wrong, and the sooner we give up this old practice and adopt a plan more reasonable, the sooner we shall be able to realize more money gained and hear less grumbling and groaning about buying grain, hard times, scarcity of money and like complaints.

There is a right way which we may just as well pursue as to be every winter complaining that we have to starve our stock or else invest all the yield from the dairy in grain to keep the cows through. It would be no more unreasonable to expect to milk a cow day after day and never give her anything to

eat than it is to hope for a good yield of grass every season and return no plant food to the ground.

Grass land, like stock, must be fed or else it will soon show its starved condition. Try the experiment. As soon as possible after the hay has been taken off, give the ground a good liberal top-dressing of stable manure, compost, muck (after it has been exposed to the sun a year at least), dirt that has washed from the road into the ditches, and in five years from the time of seeding, instead of being compelled to plough up and begin anew, you will have a thick, heavy sod, and a yield of grass that will pay for the time and labor invested.

But in the meantime this other ruinous practice must be, partly at least, given up. If the cows are turned into the meadow in the fall, be careful that they are not permitted to grub too close. Leave a good growth to help protect the roots through the winter, and after the frosts have loosened the ground and left it in condition for growing grass in the spring, don't try to render it better by tramping it into a mortar bed. Adopt this practice and a few years experience will teach us all that it is better to let a meadow be a meadow and pasture the cows where they belong.—*C. T. Leonard, in Ohio Farmer.*

Trout Ponds.

Subscribers ask for information about the best way of constructing trout ponds, and of breeding and rearing trout. If we wanted to know how to raise horses, or cattle, or sheep, or pigs, or poultry, our thoughts would be divided among a number who have more or less distinguished themselves in each department, but when we seek information about fish culture our thoughts instinctively turn to one man, who is without a rival—Seth Green, of this city. Mr. Green has written a manual of trout culture, which we would advise all who contemplate constructing ponds, whether for family supply or profit, to procure and study.

The first requisite of success in trout culture is an abundant supply of *spring water*. If you have no springs near the surface, or that can be brought there without too much expense, you had better abandon all thoughts of trout culture at the outset. It would seem superfluous to say that the supply of water should correspond in abundance to the amount of business you propose to do. There should be a few feet of fall to the spring or springs, that the water in the ponds may be changed frequently.

Where but a few trout are required for family supply, a single pond may answer. The bottom should be covered with gravel, so that the fish may spawn thereon; and the sides should be made very shallow, that the small fish may escape from the large. Where trout-raising is to be followed as a source of profit, a succession of two or three ponds, increasing in size and depth, and connected together by narrow races for spawning, are important. The fish are prevented from passing from one pond into another by means of screens.

The whole business of hatching the eggs is too complicated to be described in a newspaper article. Hatching houses, with troughs, are provided, the eggs are handled with the utmost care, and watched during the period of incubation, which lasts from fifty to seventy-five days, depending upon the temperature of the water, the longer period producing the healthier fish.

The feeding of the young trout is a particular business, and if not properly attended to the death of large numbers will be the result. They must have animal food, and have it so fine as to incur no danger from choking. Raw liver, chopped very fine, or the yolk of an egg, boiled hard and cut fine, are good; but perhaps the best and safest food is loppered milk, strained through a coarse cloth to divide it into small particles. It should be diluted with one-half or two-thirds water, when a half teacupful will feed a hundred thousand fish when they first begin to feed.

In these small artificial ponds large trout cannot procure their own food, but must be fed regularly every day, or they will not thrive. The cheapest bits of meat that can be obtained from the slaughter-houses will answer for this purpose, such as liver and lights, provided they are chopped fine. If fed in too coarse pieces, they may choke the trout.

We have only attempted to point out a few of the leading considerations in successful trout-breeding, but would not advise any of our readers to engage in it as a business without consulting all the sources of information, and especially this little manual of Seth Green's. For the use of a small family, they can scrape out a small pond near a living spring, procure of a breeder a few trout to begin with, attend to their feeding, &c., and they will probably propagate fast enough without artificial incubation.—*Rural Home.*

Seasoning and Preserving Timber.

There are different ways of seasoning timber; the most simple is to dry it in the air under a shed. the next to immerse it in water for a season, salt water by preference, which dissolves some of the sap, which otherwise may promote decay; the next is to put it into a warm place, artificially heated, for instance by steam pipes; this produces a kiln drying. A still better way is to place it in a steam chamber, where steam under high pressure is introduced; this penetrates into the fibres and prepares the wood for a more equal shrinkage when dried afterwards; it is a kind of cooking process which coagulates the albumen, and thus augments the solid matter in the wood, preventing lumber thus treated from swelling afterwards by dampness, and to shrink by dryness only half as much as other lumber.

The exposure to steam-pressure is no doubt among the simplest of the thorough methods. Experience has shown that an exposure of timber during two or three weeks to high pressure steam will thoroughly season such lumber, however green or wet it may be. Such seasoning acts to some extent as a preservative; however there are more thorough methods of preserving wood, based on the joint action of tannin and iron. We are able to corroborate this principle, having before us a sample of moderate antiquity, but sufficiently old. It is a piece of white oak dowel, which was for some thirty or forty years in pine flooring of Tiber creek arch, Washington. It is black, perfectly sound, and as hard as ebony; it evidently owes its black color and hardness to the combined effect of the iron in the soil on which it was placed and the tannic acid in the wood itself. The cost of the materials for this process is small, as tannic acid pure enough for this purpose can now be produced for about 10 cents a pound, and even much less in the future, as it can be made from bark, young branches, and leaves of many trees, which owe to that acid their astringent properties.—*Manufacturer and Builder.*

Thermometer Churns.

Lacteal masses have always understood that to have the butter "come quick"—or, in other words, to obtain a quick separation of the butter from the butter-milk—the cream or milk, while being churned, must be of proper, or about such a temperature. But to ascertain what precise degree of temperature, and then to obtain it, has been difficult, and in fact has not been done to any extent, until the introduction of the Thermometer Churn. They have also known that when the process of churning (or agitating the cream or milk) has been protracted, or warm or cold water added to produce the sought-for temperature and proper state of the cream or milk, and thereby a separation, that the butter obtained was of an inferior quality and color, and less in quantity.

This churn is constructed with a double bottom, made in the form of a semicircle, of two sheets of zinc placed one above the other, the cream to rest upon the uppermost, between two sheets, forming the bottom, is a space or chamber, into which may be introduced cold or warm water, as may be required, to increase or diminish the temperature of the cream or milk.

There is a thermometer permanently placed in one end of the churn, entirely secured from breaking or accident, marked at 62°, and which is always visible, that the operator may know and determine with certainty when the cream or milk is brought to the proper temperature. If the cream or milk is too warm, the mercury in the thermometer will rise above 62°, and cold water should be applied in the chamber described; if too cold, the mercury will fall below the mark, when warm water must be used instead of cold.

This churn is simple in its construction—is light, portable, durable, very easily operated and readily cleansed. By reversing the motion of the crank it is liberated, when both that and the dasher or floats are drawn out.

Bean Weevils.

Inclosed find a box of beans containing bugs, or insects of some kind, which destroy all the beans we grow here. The query in my mind is, whence do they come? I was told that beans planted as late as August would not be buggy; but these are, as you will readily see, should they arrive safely.—*Wm. B. Wicks, Norfolk, Va.*

The small, greyish beetles infesting your beans are the well known bean weevil (*Bracon abditus* of Say). It is closely allied to the common pea weevil,

(*B. pisi*, Linn.) and the eggs are deposited in the same manner—that is, upon the pods while growing in the field. The eggs hatch, and the larva penetrates the soft beans. The hole made soon closes, leaving no sign of injury. The grub eats out for itself a small cavity within which to undergo its various transformations, remains within the bean until the following season, when the mature beetle comes forth in time to attack the growing crop. We doubt the efficacy of early or late planting, because weevils are constantly emerging from stored beans throughout the summer. If infected beans are stored in a warm room, the beetles will frequently appear in January, while under opposite conditions they may not come out until July or August, as in the specimens you send. To prevent the increase of this insect the beans should be stored in air tight barrels or other vessels as soon as gathered, and some pieces of gum camphor sprinkled in among them and they close up the vessel for a month or two and every grub is killed. A few spoonfuls of kerosene oil is also said to answer the same purpose, although we have never tried it ourselves.—*Rural New Yorker.*

Canadian Farm Bell.

On my *debut* as a farmer, I set about to find a suitable gong or bell to call to dinner and for other purposes. For this object I wrote to Scotland, where I had seen a gong used for "dinner call," but in reply I was told that the gong I had seen there was from Russia, and was one of her exclusive manufactures.

Through the kindness of the editor of the *Canada Farmer*, I was furnished with a drawing of a bell or gong in use in the Dominion, which I was told was made of round bar iron, in the shape of a musical tuning fork; but deviating from this, I procured 7 feet of octagon fine steel; in the centre of this a half twist was made by which it is suspended. The twist or hole does not admit of any part of the metal touching so as not to allow an interruption of sound. From the eye thus made the iron or steel, let the arm be about 14 inches, at which point the tines of this large fork will turn down, and for appearance let the tines incline toward each other, and about 8 inches of the tips of the tines will have to be thinned or tapered and turned at the ends, not unlike a ram's horn, but no part allowed to touch upon itself to jar the sound.

This bell or gong I have suspended from the limb of a tree, and is struck with a wooden mallet or iron hammer (the wooden mallet for ordinary calls, the iron hammer for extraordinary occasions). Strike 3 for Tom, 6 for James, and so on indefinitely. When struck with iron it is more shrill, but can be heard as far when struck with a billet of hard wood and more musical in sound; so much is this the case that on a recent occasion visitors of musical tastes had no difficulty in playing upon it tunes of any time or measure.

In conclusion, after three years' use of this bell I would hereby recommend it to those whose ears are sensitive to the distorted music of a round plate of boiler iron or tin horn.—*Cor. Practical Farmer.*

What shall we have for Dessert.

Let me suggest to your readers a few ways of varying the dessert at dinner—changes from the inevitable pie. They may not be new, yet I never see them at any table besides our own.

Make a dough as for biscuit; roll thin and spread with currants, cherries, or any kind of berries. Roll it up like jelly cake and steam it till done. To be eaten with sweetened cream.

Another is: To one pint of sour milk add one teaspoonful of soda, flour to make a batter, and a handful of dried cherries or currants. Pour into a basin and steam until done. To be eaten with sweetened cream.

Instead of sweetened cream for the above pudding, a sauce made of half a pint of wine, half a cup of sugar, one tablespoonful of butter boiled and thickened with a little flour, might be used. Cider is a very good substitute for the wine. Or instead of the sauce, a syrup of sugar and water boiled is good with either of the puddings.

The following I know to be new to your readers, for it is my own invention. Towards spring, when apple butter becomes a drug in the domestic market, it can be used in this wise: To one pint of apple butter add a pint of sweet milk, a cup of sugar (more or less according to the sweetness of the apple butter), and two tablespoonfuls of flour. Bake in tins lined with pastry, and with strips of pastry across the top. Please try it.—*Cor. Ohio Farmer.*

Musk.

Musk is a secretion, and is obtained from the musk-deer (*Moschus moschiferus*), a pretty little animal inhabiting the higher mountain ranges of China, Pongm and Tibet. The musk is found in a small pocket or pouch under the belly of the deer. The hunters cut off this pouch, which, becoming dry, preserves its contents, and in this state the best article reaches our markets. Musk, when moderately dry, is an unctuous powder of reddish-brown color. It gives out a powerful odor of a warm, aromatic character and most wonderful persistency. Blending well with almost every other scent, it discovers but little of its own peculiarity in compounds, when used in proper proportion, and yet gives them great permanency. In point of general usefulness to the perfume it is probably unequalled by any other substance; for, although coarse and undesirable in a pure state, the most popular compounds are those in which it is an ingredient.

Genuine musk is very costly, being worth, when separated from its sac and all extraneous matter, from twenty-five to thirty-five dollars the ounce. Its great strength compensates in a measure for its price. One part of musk, it is said, will scent more than three thousand parts of inodorous powder.

Horse not Lying Down.

There is no better way to coax a horse to lie down than a good, clean, dry bed in a clean, airy, loose box. The causes are many; being cast in an ordinary stall, or getting the foot in the halter strap, have prevented many horses from lying down for months and years, especially when kept in the same stall. I have had horses which would not on any account go, even if forced, into a stall where they had suffered, but would go immediately and cheerfully into any other ordinary stall. Any practical veterinarian knows how often horses, otherwise quiet and obedient, refuse to approach his infirmary, and even the sound of his (the doctor's) voice will produce quite a nervous trepidation in an animal upon which he has operated, evidently causing the animal pain and suffering. We very much underrate the capacity of our noble domestic animals to appreciate a kindness or to resent a wrong. This is more often manifested by the noble and faithful horse and dog.

A change of place will often give encouragement to a horse, and he will lie down, although having persistently stood up in his accustomed stall, from having received an injury there, or from its much resembling the place of former suffering. I do not claim that this is the only cause, for I have known horses for many years that would not lie down anywhere, and which had never had the above cause for this refusal. Again, I repeat, a clean, loose box is the best to bring about a change in the horse's habits.—*Wm. HORNÉ, in Country Gentleman.*

Doctors never allow ducks on their premises, they make such personal remarks.

The Louisville man pulls his shirt on the same as he does his trousers. He can't get it on over his ears.

A writer asks if any one can inform him of the best way to start a nursery. Get married, is the answer.

"WHAT brought you to prison, my colored friend?" said a Yankee to a negro. "Two constables, sah." "Yes, but I mean had intemperance anything to do with it?" "Yes, sah, dey was bof 'em drunk."

A NEW HAMPSHIRE farmer's wife fell into a well, and it was four days before he missed her and made search. He said he thought the house unusually quiet, but he didn't know what made it so.

PAPER PILLOWS.—Excellent pillows may be made of old letters—the stiffer the paper the better. Newspapers will not do. The paper should be cut into strips, and rolled round an ivory knitting needle; it is then almost like a spring, and makes a much better cushion than the torn paper, being more elastic.

TO AVOID GREASY BUTTER.—Churn with pressure instead of friction. The dash churn brings butter by pressure, and makes better butter than most other kinds of churns. Butter should also be worked by pressure instead of friction. The ladle or worker should not be drawn across the butter, but pressed down upon it.

CHEESE FROM GOAT'S MILK.—Although in 1872 the total number of goats in France (excluding Corsica) was 1,600,848, and although goat cheese is highly regarded, it is asserted that at the show at Paris last February, out of nearly 700 entries of cheese, there was but one entry of cheese made from goat's milk.

The *Agriculturist* advises farmers and fishermen to dry their boots, when wet, by filling them with dry oats. The grain rapidly absorbs the moisture, and as it takes it up swells enough to fill the boot like a tightly fitting last. When the oats are emptied out, put them in a bag by the fire to dry for future use.

A romantic York, Ill., girl thought to Maud Mullerize and "rake the meadow's sweet with hay." She stood over a yellow jacket's nest as she swung her little rake. First jump from the score eleven feet. Distance to the house, half a mile. Time, two minutes.

USE OF THERMOMETERS.—The differences in the ordinary meteorological observations are not so much owing to the defects of the thermometer, as a general thing, as to the want of a proper care in observation. To ascertain the true temperature of the atmosphere the instrument should never be hung against the wall of a building, as the heat absorbed and radiated will cause a change of several degrees, depending on the nature of the material of the walls and side exposed to sun or wind, as also the radiation from the internal heat of the building. The best place is under the shade of an open cover or tree, away from any buildings, suspended a few feet above the ground. The fact that the air may be at rest or in motion will not affect the temperature. To ascertain the heat of the direct rays of the sun the instrument should be covered with a coat of lamp-black, and exposed to the direct rays of the sun in a sheltered place.—*Western Manufacturers*

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