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The Field.

Plaster and its Uses.

Plaster of Paris, or gypsum, is a manure of great value for certain soils and crops. It is found very abundantly in various parts of the world, and can usually be had conveniently and cheaply, by such as desire to use it. Chemically speaking, it is *sulphate of lime*, the composition of which, when pure, is:—

Sulphuric Acid.....	43
Lime.....	33
Water.....	24
	100

But plaster is commonly found united with a portion of silica and alumina, and it is this admixture doubtless, which renders it so useful for moulds, casts, house decoration, and other artistic purposes.

The employment of plaster as a manure, is of comparatively recent date. No mention is made of it by ancient writers on agriculture. Some think that there is a vague reference to an impure variety of it in Virgil, and it is also supposed that the earlier inhabitants of Britain used it, but this was ages before chemists had learned to distinguish this material from common limestone, and calcareous matter in general. According to the best authorities, a German clergyman of agricultural tastes, named Mayer, first called attention to the value of plaster as a top-dressing for young clover. This was about the middle of the last century Tscheffeli, an eminent Swiss agriculturist, soon after tried a variety of experiments with it, the results of which were so successful, that the new manure speedily came into general use throughout Switzerland, where it still maintains its original reputation. Its fame spread all over Europe, and at length reached Pennsylvania, on the continent of America, where the most surprising results were produced by its use. The celebrated Benjamin Franklin is said to have been one of the first who tried its fertilizing efficacy on clover in the New World. He sowed it in a clover-field near one of the high roads in Pennsylvania, so as to form the letters of the sentence, "This is manured with gypsum;" and so marked was the effect in color and height of the clover thus treated, that the sentence was easily read, and proved a very telling advertisement for the new fertilizer. Some of the accounts of early experiments in Pennsylvania, are quite marvellous, and prove a very special adaptation of soil and climate to plaster. It is on record, that early Virginian wheat having been sown on exhausted land, at the rate of three bushels per acre, it yielded, under the influence of plaster, forty bushels per acre of the finest grain weighing 64 lbs. per bushel, and ripening before the earliest rye; that by spreading two bushels and a half of plaster on an acre, three times as much clover was grown as where it had not been sown; and that six bushels of

aster have been found preferable to fifty cart loads of the best dung. So highly was it esteemed, that it was imported from France, and conveyed by land carriage upwards of 150 miles from the Delaware, until at length beds were discovered in New York and other parts of the American continent. Its use in the United States and Canada has been much more general and successful than in Great Britain, though it is highly prized by many distinguished British agriculturists. Our soil and climate, however, seem better suited to the action of this fertilizer than those of the old country, and the pity is that so valuable a manure is not more extensively used, especially as Providence has furnished ample supplies of it at our very doors.

The beneficial action of plaster on certain soils, is owing to its containing, in addition to lime, the important element of sulphur, which enters into the composition of nearly all parts of animals and vegetables, and is found in a variety of combinations, which render it available for plant-food. Some soils are sufficiently supplied with both lime and sulphur, and to these the application of plaster is needless and useless. Soils on which it does not act as a manure, are invariably found to be well supplied with sulphate of lime. It is not, however, necessary to make a chemical analysis of the soil in order to ascertain whether it needs plaster or no. There are sundry simple tests which may be easily applied even by the unscientific farmer. These are well enumerated by Cutlbert W. Johnson as follows:—"When he finds that those fields, which once produced luxuriant crops of red clover or sainfoin, will no longer yield them in abundance; if he notices that the young plants spring up very numerous, but die away as the season advances, if he finds that his fields will only grow clover successfully once in 8 or 12 years, and that his neighbors tell him that his land is tired of clover, or "clover-sick," if he notices that even the application of farm-yard compost hardly adds to the luxuriance of his grasses; he may then safely conclude that his crops have exhausted his land of sulphate of lime, and he may, with every confidence of success, apply a dressing of gypsum, at the rate of two cwt. per acre, taking care to secure a damp morning for the application, and this may be done at any season of the year, it is best either in April or the first days of May."

The soils to which plaster is best adapted, are those of a light, dry, sandy, gravelly or chalky character. Heavy loams, clays and wet land seem to derive no benefit from it. Heavy loams that have been well limed, form an exception to this remark. The effect of this fertilizer, itself calcareous in nature, on soils already impregnated with similar matter, is one of the mysteries of nature which chemistry, with all its researches, has not succeeded in finding out. Indeed, all the explanations ventured in regard to the action of plaster, are little better than guesses at the truth.

Some think it attracts moisture. Others think it checks the action in plant leaves. Others contend that it liberates and decomposes plant-food already in the soil. Others, and among those the distinguished Liebig, maintain that it fixes the nitrogen or ammonia which is brought into the soil, and stores it there for the use of vegetation; hence the long continued action of gypsum year after year. Others tell us it liberates the potash in the soil. Still others attribute to plaster the function of drawing to plants, on which it is strewn, various fertilizing gases that float in the atmosphere. We shall discuss none of these theories. The fact of the utility of this fertilizer is undeniable, when applied to such soils as have been specified. It has been proved that in a most efficacious, though inexplicable manner, it acts upon particular crops, as well as upon certain soils. The facts which have been demonstrated, time and again, are a sufficient guide for all practical purposes.

The plants to which this fertilizer is best suited, are those of the broad-leaved, leguminous classes, such as clover, peas, beans, vetches, lucerne and sainfoin. All these plants contain gypsum or sulphate of lime in sensible proportions. Analysis of clover and sainfoin grasses has shown that an ordinary crop of these usually contains from 1½ to two cwt. per acre of sulphate of lime, and this is the proportion of plaster which experience teaches is of the most benefit to the growing crop. The annual repetition of this dressing is followed by renewed benefit. Here the chemist and farmer confirm and illustrate each other. The amount of sulphate of lime which a clover crop takes off, is precisely that which it is found useful to supply as an annual application of plaster. Other crops besides those mentioned, have often had this fertilizer applied to them with the best results. Oats, Indian corn, rape and turnips are benefited by it. But it is on red clover that plaster achieves its grandest effects, and whether as a rotation with wheat, a means of amendment to an impoverished soil, or as a simple product for profit it pays to use it on this crop, and it is indeed the poorest economy possible not to do it.

Much of the efficacy of plaster has been found to depend on the state of the weather at the time of its application. Both a wet spell and a drought are unsuitable seasons. It is recommended to sow it in the evening, or early in the morning, or just after a shower, as it is found that much benefit results from its adhering well to the leaves. A gloomy, hazy day is a good one for the job. From 100 to 200 lbs per acre may be sown according to the condition and requirements of the land and crop. The value of the plaster as a manure may be greatly increased by adding dry unbleached wood ashes in the proportion of one bushel of ashes to four bushels of plaster.

It may be interesting and instructive to some of our readers to mention, in conclusion, a few particulars concerning the natural history of gypsum, and the mode of its preparation for market and use. It is found in the form of a hard, white, opaque rock. Its geological place is among the stratified rocks. It is quarried, subjected to strong heat in a kiln to drive off the moisture and make it brittle, and then ground in a mill constructed for the purpose. The finer it is pulverized the better it is for fertilizing uses. When first ground, it is very dry, but it quickly imbibes moisture from the atmosphere, which adds greatly to its weight. It is found in considerable abundance at Paris and York on the Grand River, in the Province of Ontario, whence it can be readily shipped to any locality where it is wanted. The whiter the plaster the better it is considered. There is a greyish article that is low in price, but it is regarded as of inferior quality, the darker color indicating impurity.

A Silent Teacher.

As a general thing, mankind are so constituted that they would walk by sight rather than by faith. "Example goes further than precept" in influencing men's actions. We may preach till doomsday of the usefulness and the profitableness of improvements, but it is the practical exemplification of their fruits that induce men to look upon innovations with favor. The past weeks, and one or two yet to come, have given and will yet give opportunities for thousands of farmers to learn by a practical experience the truth of what agricultural writers have been enforcing upon their notice by "line upon line and precept upon precept" for years past. Improve your farms, level the rough places, remove the crooked fences, rid the fields of stones and other incumbrances, utilize every rod of ground lest it become a prolific source of pestiferous weeds, fertilize the soil, and make two or more blades of grass grow where but one grew before, and it will be money in the pocket, and pleasure and gratification in the barn, the stable, and the dwelling. But yet year by year the same unsightly spots, the same crooked, cumbersome fences around misshapen lots, too insignificant to be called fields, have prevented the plow; the same obstructive rocks have gapped the scythes and jarred the arms of the mower; the same wretched crops have raised the question whether it would best pay to gather them or leave them to scatter their seed upon the ground too impoverished to sustain their growth; and the same impecunious condition has made the payment of taxes and the purchase of groceries or clothes a matter for close figuring. But one neighbor more adventurous and reckless of consequences than others has procured a mowing-machine, and straightway there comes into the field a silent teacher, whose influence for good outweighs in one short season the wordy lesson of years. Elegant in form and brilliant in appearance, it has a "taking way" with it from the first. The weary mower laboring over his acre per day, and wasting a good fourth of his time in whetting his scythe hears the musical "click, click" of the mower across the fence, and beholds his neighbor at eventide unwearied after his day's ride around his field, contemplating his eight acres of meadow shorn, and the crop ready to be raked and hauled on the morrow. No fears of the weather trouble his serenity. His crop is safe, while the swinger of the scythe must run the risk of a week or more before he can rest at ease on this score. When his weary limbs are laid to rest, he will be apt to calculate the money value of all this before he sleeps, and strike the exact balance in favor of machinery over hand-labor. But this will not be the only lesson learned. His neighbor will, at the same moment, probably, be recalling the experiences of the day, for the same silent teacher has been eloquent in instruction for him too. He learns that to gain the best results from his machine he must level down the knolls and grub out the stumps. The stones, which threaten every moment the safety of the machine, and which he has for years cut and hacked with his scythes, must now be got rid of. The impassible gullies and sloughs must be filled or drained by next year, and the fences which impede his progress must be abolished. It dawns upon his mind that what he has been reading for years, but which he never supposed concerned him in the least, was of vital interest to him, and it has now a new force. By a curious, but very common, process of growth, one idea gives birth to another, and like a man whose eyes are suddenly opened, he takes in more at a glance than he can readily appropriate in so short a space of time. But his mind is charged with latent ideas, and he only needs the occasion to arise to bring each one into fruitful action. He will be an apt scholar, for the question of dollars and cents presents a wonderful attraction to the inquiring mind. From that day forth his main idea will be to find more work to do. As he runs hereads, as he may very well do. Poor crops will no longer be tolerated now that his machine does his work. Two tons of hay per acre are as easily cut and raked by horse-power as one ton, and his efforts will be successfully directed toward the laudable ambition of realizing that achievement only to be stimulated by success to further efforts. Then he abandons those doleful attempts he was wont to make as he discussed matters and things around the stove, at the grocery to show that farming was "played out," and did not pay any more. His thriving farm, his well-cared-for machinery, his thrifty and well-improved stock, refute his former arguments and make him daily eat his own words; proving themselves silent teachers, whose lessons have a weight that admits of no gainsaying, both for himself and his neighbors who watch him very closely and recall his success.—*N. Y. Times.*

Deep or Shallow Cultivation.

Why plants and trees prefer the upper and disturbed soil is obvious. Disturb, aerate and manure the subsoil, and then the plant or tree will multiply its fibres or roots in that lower soil, especially as the surface becomes more heated and dry. I have a striking proof of this in my back yard, where there was once a piggery. I filled up the space some 6 feet deep with ordinary clay soil, and planted on it some aucubas, laurels, bays, arbor-vitae and box, in order to hide a stable wall. Although the plants are small their growth has been so rapid and luxuriant that they are from 10 to 15 feet high, and they absolutely wedge or press upon each other with a development which surprises, and also proves that if the lower soil is both disturbed and amply manured, a small surface space is sufficient to maintain an immense vegetable growth. They have found in the deeper soil the needful food in some droppings from the ancient piggery. As regards the removal or transplanting of fruit trees, it is only another proof of the necessity for more deeply disturbing and manuring the soil by removing them after having exhausted their surface food, they thus go to a new supply and prosper accordingly. That removal would not be necessary if they had an ancient piggery or well manured soil to feed on deep below the surface. Said my bailiff to me this morning, "Do you know why these calabages don't grow as they generally do?" I said "No." "Well," he replied, "because we omitted to follow the plough with a second one going some inches deeper. We were busy and could not spare the horses, and now the roots are on an untilled bottom.

The fact is, the ploughmen are always too glad to escape the subsoiling, because it is harder work. The loss in crop by late and shallow ploughing is, taking the whole country, something fearful. The roots of crops soon strike through the thin furrow slice and come on to what I call a paved-floor, and then the pale and sickly plants give evidence of their uncomfortable and unprofitable condition. Many a mangold crop has failed to make its appearance because the thin furrow-slice has been dried through. We never miss our plant of mangold, because the soil is deeply, double, or trench-ploughed before winter, and it thus holds and gives moisture, as well as being a good filter in wet weather.

I attribute the general satisfactory appearance of all my crops to very deep cultivation, and I would make it much deeper had I steam-power, keeping, however, the lower soil still under the older cultivated surface.

I consider it both a national misfortune and disgrace that our general agricultural pie crust is only as thick as an old family Bible. It ought to be as deep as our tables are high, and it is so in the case of Mr. Campbell, of Boscot, who, after draining 4 feet deep, cultivates with 30-horse power engines 36 inches deep.

We are now about to manure and plough our land for transplanting cabbage after green tares mowed off. After spreading 20 loads per acre of good rich shed manure (no rain on it), two horses will be on the first plough, the second one, without its breast, following in the track of the first one, and drawn by four strong horses. That is the way to grow maximum crops. Draining, where required, should precede deep cultivation.

It should always be remembered that we cannot manure the subsoil through the top soil, for a few inches deep of the latter have the power to arrest and fix a much larger quantity of manurial elements (especially ammonia, phosphate of lime, and potash) than is ever applied in ordinary farming. This is why clover and other deep-rooted plants can only be grown at long intervals, for only a very small portion of manurial elements can pass the surface soil or escape being fixed by it. The raw and unaltered appearance of undisturbed soil immediately beneath the ploughed land gives unmistakable confirmatory evidence of the fact stated. Liebig and Way explain the cause of this fixing.

It is therefore quite certain that if we desire to manure the subsoil the manure must be incorporated with the subsoil, or the subsoil must be intermixed with the surface soil. The Rev. S. Smith, of Lois-Weedon, used to throw aside the cultivated soil and incorporate the manures with the undisturbed subsoil.—*J. J. Aeckli, Tiptree, June.*

Cockle in Wheat.

A correspondent writes as follows:—"You can get rid of cockle in a single year by the use of a good fan, and in summer weeding out as much ground as will be sufficient for your seed in the fall. I have a rich soil, excellent for weeds, and some farmers would say natural for chess, and yet I know from experience that I have neither cockle nor chess in my wheat if I choose to do without it."

We can endorse the last paragraph from the pen of our correspondent, but not the first one. We do not think that cockle can be cleared out in one year. It is true that enough may be picked over to insure clean seed for next sowing, but if the whole crop is not so picked over, the cockle seed will be threshed out with the wheat, and pass into the barnyard with the straw and chaff the next season, if the manure is put in for wheat, the cockle seed will sprout and produce a fine crop.

If our correspondent will add one year to the time for getting rid of this pest, we will then endorse him; but we do not think it can be done the way he proposes; simply picking over enough for seed.—*Journal of the Farm.*

California has a wheat field of 38,000 acres.

From one grain of wheat planted three years ago, Burrell Green, of Florida, now has three acres of grain.

MANDRAKE ROOTS FOR POTATO BUGS.—A gentleman residing in Brecksville, says the *Ohio Farmer*, which is in the part of this county of Cuyahoga, reports a very successful treatment of potato bugs, with a decoction of mandrake root tea. The roots are boiled in water and the decoction sprinkled on the potato vines, the same as directed for the solution of Paris green.

SALT FOR CUT-WORMS.—A great deal of attention is attracted to the application of salt to corn-hills to prevent the attacks of cut-worms. The late Isaac Newton, Commissioner of Agriculture, said: "Take one part of common salt and three parts of plaster or gypsum, and apply when the plant first makes its appearance, about a tablespoonful around every corn-hill. It will be found a sure protection. The mixture should not come in contact with the plants, as it may destroy them. This method has been tried over and over again by some of our best farmers in Pennsylvania, and when properly applied has never failed." Newton further said that he tried this in alternate rows, which completely proved its efficacy, as while those where it is not used suffered greatly from the grub, not a plant of the other rows were touched. Let it be tried, as it can be so easily done by those who are troubled with cut-worms in the corn-field about these days.

ANALYSES OF MARLS.—Ryland F. Brower, the chemist of the Department of Agriculture, in the July report, shows in his three analyses that some green sand marls contain eighty-four parts sand, and nine carbonate of lime; yet it is much richer in alkalis and phosphoric acid than shell marl, which is all lime and sand. But he says one and one-half tons of the former and two and one-half tons of the latter will supply mineral elements enough for an acre of wheat. No wonder, he says, that the large amount of lime and sand with which the more valuable ingredients are mixed with forbid the transportation of this marl to any great distance. It may be well however, to remark that no geological report that has yet appeared from New-Jersey has ventured to publish so low an estimate of the green sand marls of that State, as every published analysis in those reports gives a much higher percentage of both phosphoric acid and potash.—*N. Y. Times.*

THE NATURE OF GUANO.—It is a generally received opinion that the deposits of guano are exclusively the excrements of birds. Dr. HABEL has investigated this matter microscopically and chemically, and has found that after treating the substance with an acid, the insoluble residue is composed of fossil sponges and other marine animals and plants precisely similar in constitution to such as still exist in those seas. The fact, too, that the anchors of ships in the neighborhood of guano islands often bring up guano from the bottom of the ocean, is quite in opposition to the prevalent belief. Dr. Habel therefore considers that the deposits of guano must be the result of the accumulation of fossil plants and animals whose organic matter has been transformed into nitrogenous substance, the mineral portion remaining intact.

Agricultural Implements.

Hay Tedders and Rakes.

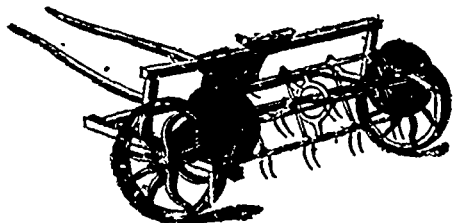
There are two crises, so to speak, in the haying period. The first is when the grass is in flower, and contains the greatest amount of nutritious elements, it should then be cut.

The second is the curing or drying period, the neglect of which means simply the partial or entire destruction of the crop. It is no uncommon thing therefore during the hay season, which by the way is a very changeable one with us, to observe a general turn-out of the entire rural population old and young of both sexes, armed with rakes and forks, turning, pitching and tossing from morning till night, under a broiling sun. This of course entails a vast amount of labor and in cases wherein the household is not sufficiently numerous for the occasion, the expense attending hired help is very considerable. In these days of mowers, too, when the work of former days can be condensed into one of as many hours, there is all the more need for an extensive supply of hands, as there is comparatively a much greater area exposed at one time.

Hay, when cut by the mower, is generally laid down in regular, compact masses which are non-con-

ducting and absorb largely if left unmoved. It therefore requires to be thoroughly stirred up so that its every surface may be exposed to the sun and air, and this should be done over and over again so quickly, that no undue waste of strength may arise from over-evaporation. Indeed the best-cured hay is that which is ready to put under cover the day on which it is cut. Every rain shower injures the yield, and a succession of them ruins it.

From these facts, then, comment upon the advantages of a good Hay-Tedder, would be superfluous.



HAY-TEDDER.

The American Tedder, the one also used mostly in Canada, consists of a series of iron forks attached to a set of jointed wooden spindles, and so adjusted that when the machine is put in operation they pitch outwards, backwards and sideways, thus turning the grass over and over in every direction. Viewed from

Grasses and Forage Crops.

Gaps Among Turnips.

From various causes, there will always be more or less of blank places in the turnip rows. Unscrupulous dealers in seeds are known to mix old and new seed, bad and good, in such proportion that while it cannot as a whole be condemned and rejected, there is considerable failure to grow. When the seed is good, some defect in the drill, or want of right management on the part of the sower, leaves many places without plants. Or a similar state of things results from the ravages of the fly.

These gaps, however occasioned, are very properly a cause of annoyance to the neat and thrifty farmer. They look bad, to begin with, and we have no sympathy whatever with the slovenly nature that doesn't care for looks. We like a bit of ploughing to look well, even though the furrows are soon to be harrowed out of sight. And we like the turnip rows to look well, even if the crop were no better for it. But these blank places of which we are speaking involve waste of good land, valuable manures, and costly labor. Sometimes they amount to so large a proportion of the field, as to occasion a serious loss of crop. It is well, therefore, that they should if possible be filled up.

In Britain, it is quite common to fill these vacancies by transplanting from parts of rows where there is an excess of plants. This, when practicable, is no doubt the best course to adopt. But it may admit of question whether transplanting is practicable in this country. To be successful, it needs a moister climate than ours. Our torrid July sun would quickly burn up the transferred plants. Now and then, in a very exceptional season, the thing might succeed. We sometimes have a few days of cloud and rain, such as would suffice to root a lot of transplanted turnips, but such opportunities are very infrequent in this country. Not that ours is an unfavorable climate for turnip-growing by any means, but, though we have summer showers, which bring the young plants forward with a rapidity often marvellous to behold, it is not a favorable climate for summer transplanting. And then the labor market is high here. We must dispense, as far as possible, with slow-coach operations in the field. Transplanting is a slow process. It may answer where labor is cheap, or where it is only required to be done on a small scale, and to a limited extent, but it will hardly pay in our circumstances.

Filling these vacant places with cabbages, has been strongly recommended by some. They are much easier of transplantation than turnips, and make an excellent winter food for cattle, especially for milch cows. But it is, after all, no easy matter to transplant cabbages even successfully in our climate. It is a job that must be done just in the nick of time, or it will fail. The beginning of a cloudy spell, or when a fall of rain threatens, is the golden opportunity that must be seized and improved. This cannot always be done. And then it is nearly if not quite as slow a process, to transplant cabbages, as it is to transplant turnips. We believe cabbages might and ought to be more largely cultivated as a field crop, but to pay well, they should be sown, like turnips, to mature where the seed is dropped, being thinned and hoed as turnips are. Hand-labor, in all our farm operations, must be reduced to the minimum, if our agriculture is to be remunerative.

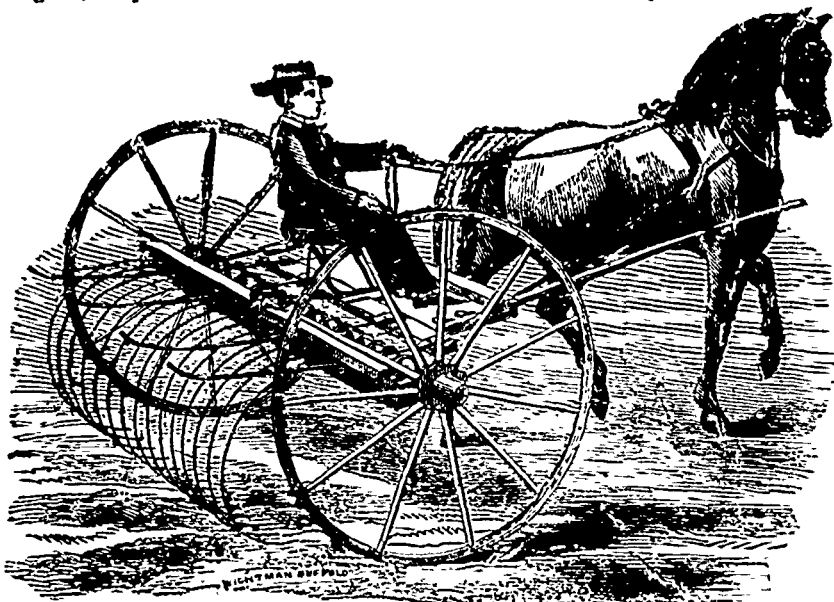
Gaps in the turnip field, may, in our opinion, be best filled up by sowing other and more quickly-maturing varieties of turnips. Of these, there are several, viz. :—Yellow Aberdeens, White Globes, Stubble or White Stone turnips. The kinds just named are of more rapid growth than the Swedes, and though not so valuable for feeding purposes, are by

and needs discharging the driver has simply to lower the handles until their hooks catch on a pair of teeth; then he lifts slightly until the front points catch in the ground, when the horse does the rest, that is, simply turns the implement over thus emptying it, wherever required. There are several varieties of rakes used both in this country and the States, all of them pretty good. Amongst these we might notice the wheel-rake (Ithaca) with 20 or more teeth of tempered spring steel and the sulky wood horse rake with a spring over each separate tooth, but we presume there is no other manufactured which will surpass the lock-lever sulky hay rake which works so perfectly as to pay for itself usually in a single season.

Its construction is exceedingly simple. The teeth are made of the best quality of steel and well tempered. The operator rides comfortably during his work, and raises or lowers the teeth by means of a lever close by his hand. The lever is likewise so arranged that when the teeth are lowered it locks itself and remains so until operated by the driver.

TEMPER OF TOOLS.—A correspondent of the Detroit Tribune says—If an edged tool is so hard as to crumble, grind it on a dry stone until the edge turns blue—it will then cease to break and the temper will generally prove to be about right. Scythes and axes are sometimes too hard at the edge, but if treated in this way will give no further trouble.

SULKY HAY RAKE.



no means to be despised. They will not keep so well as the Swedes, and therefore should be fed out in the late fall or early winter. Thus managed, they may be made very helpful in eking out the supply of roots. The Yellow Aberdeen is the best of those varieties of the turnip which may be sown late. It will attain a good size, if the season be favorable, though sown three or four weeks after the general crop of Swedes, and that interval affords ample time and opportunity to fill all vacant places. The White Globes will also make a respectable growth and furnish considerable feed by pulling time. The White Stone is a table turnip of excellent quality. A few bushels of them will be found an acceptable addition to the household stores, and will help to render many a "boiled dinner" more bountiful and more palatable.

We say then to every owner of a turnip patch, see to it that the gaps are filled up. In some cases the vacancies may be discovered soon enough to admit of sowing Swedes a second time, just as when the first sowing has been eaten by the fly, and a second has been tried with success. Should a second sowing of Swedes prove partial, fill with Aberdeens, and if they do not occupy all the ground, put in White Globes or White Stones. You have bestowed your choicest manure and most patient labor on this part of the farm, therefore, make it produce to the uttermost, and let there be no waste or loss that can possibly be avoided.

Raising and Feeding Carrots.

"I have raised carrots a number of years, and I find them an excellent root to feed to all kinds of stock. I raise the Early Orange, which I think are sweeter and richer than the Long Orange, or any variety I have seen, and with me more productive. I usually raise at the rate of ten hundred to twelve hundred bushels per acre, but have raised at the rate of thirteen hundred bushels.

My method of cultivation is to manure the ground well, plough well, harrow enough to pulverize thoroughly, rake off smooth, and sow the seeds. I usually sow them about the time I plant my corn. I sometimes use a seed sower and sometimes sow by hand. When I sow by hand, I strike the rows with a marker that makes four marks at a time, eighteen inches apart. I scatter the seed along in these marks and cover them with a hoe, by pushing it. This will cover them deep enough if the soil is in good condition and well pulverized.

They ought to be hoed and weeded as soon as the plants are large enough to be plainly seen through the rows, for they are very tender little plants, and the weeds being the strongest will get the better of them in a very short time, if allowed to grow, making it very difficult, injurious and slow weeding. I usually go through the piece in about ten days after weeding, and hoe and thin them to three or four inches apart.

This variety can stand nearer together than the Long Orange, for their tops are smaller and do not grow so long, giving them a chance to crowd out between the rows. They have a small fibrous root, that grows down very deep and the most severe drought of the past dry season has never seemed to injure the crop. They are very easily harvested; as the most of them can be pulled up by the tops, and the tops are so small that they can be broken off with the thumb and finger.

I have made it a practice to feed them to the most of my stock, and by harvesting my hay early, securing it nicely, and feeding a little grain and carrots with it, I can keep my stock growing and gaining all winter.

I find that by feeding carrots and a little grain with the hay in winter, to milk cows, the milk will have a very good flavor, and a rich color, and the butter as nice as that made from the grass in June. I think it is better to feed grain with carrots, or carrots with grain, for either is better fed with the other — *New England Farmer*.

—Mr. Mechi, the eminent English agriculturist, states that last year he reared 120 lambs from eighty ewes without any loss. He attributes some of this success to having proper shelter for the mothers immediately after parturition, and a little milk, if required, for the lambs; each lamb was also given a teaspoonful of castor oil,

Agricultural Chemistry.

The Chemistry of Drainage.

In the last number of the CANADA FARMER, we explained how the food of plants was absorbed, in a state of solution in water, from the soil by the roots. It will be remembered that the presence of a large quantity of stagnant water was said to be injurious, instead of beneficial to the growth of the plants. This has been proved by the beneficial effects which so constantly follow a thorough system of drainage. It has often been objected to by those who advocated the laying down of drains as a measure for improving the soil that they were advising a proceeding which would sooner or later destroy the soil's fertility, by washing away the soluble matters which it contained. At first sight it would seem that there was much to be apprehended from this cause. The soluble substances contained in the soil form, as we have seen already, a most important element of plant food, and one would fear that by allowing the water which had soaked through the soil to run off from beneath that, we should at least run a great risk of dissolving them out of the soil and carrying them away altogether. Experience, however, has not shown these apprehensions to be well founded; but, on the contrary, it has demonstrated that lands are almost always improved by drainage.

In Great Britain, it has been found that soils which have been thoroughly drained are not only much more easily worked, but also that earlier and more certain harvests are secured, that manures give better results, that fallows are not so much needed and that the character and quality of the crops raised, are greatly superior to what they were before the land was drained. Similar favorable results have been obtained in other countries where a thorough system of drainage has been put into practice.

An analysis of drainage water throws some light on these facts. It shows us that the quantity of potash, phosphoric acid, and other soluble matters taken up by the water and carried away by the drains is extremely small. Experiments with lysimeters, *i. e.*, square boxes having a perforated lid covered with a layer of earth, through which the rain trickled and was collected in the box, have shown that all the water that trickles through a portion of soil in six months does not contain one quarter of the amount of potash taken from the soil by a crop of barley. A dark colored liquid may be rendered quite colorless by filtering it through animal charcoal. The charcoal has an affinity for the coloring matter and removes it from the water. In like manner the soil has an affinity for the soluble salts in question, and retains them firmly, so that water in trickling through the soil will carry very little away.

The upper crust of the soil is richer in plant food than the lower portion, or subsoil. Hence although rain washing the surface and running off by open channels may and does dissolve and wash away a considerable quantity of nutritive matter, the water which sinks into the land, carries these nutritive substances deeper down into the soil and deposits them in the lower portions where the roots of the plants are to be found and where these roots can seize and absorb these soluble matters. Draining causes the rain to sink through a considerable thickness of soil before it runs off, and hence it causes less loss of nutritive matter than is occasioned by rain washing soil as it does in undrained lands, carrying off to the streams and rivers much of the valuable nutritive matter that abounds on the surface.

Here then, is one way in which drainage proves advantageous. It actually diminishes the loss of plant food by washing away. But this is not all. Stagnant water is, as we have already said, injurious to the roots of plants. They will not grow in it. Drain-

ing removes this, and hence the plants send down their roots deeper and consequently their capability of absorbing nourishment is greatly increased. It is this increased depth of the roots in well drained soils which renders the crops which grow on them less liable to suffer from drought than those on imperfectly drained land. Again, access of air to every part of the soil is of the utmost importance. The air assists the various processes of decomposition by which dead animal and vegetable matter is made to yield products of the highest value as elements of the food of plants. If the soil is full of water, of course the air cannot get into the soil to perform this office, but draining, by drawing off the water from beneath, gives the air free admission to the soil, and each shower of rain, by displacing the air already present and then falling through the soil and running away in the drains renews the supply of fresh air, and in this way is of the greatest benefit. The action of air on these decaying organic materials, is, as follows: Organic substances consist essentially, as we have seen, of carbon, hydrogen, oxygen and nitrogen, but the oxygen that they contain is insufficient of itself, to burn up the other elements; and hence, when organic compounds are heated out of contact with air, the oxygen unites with part of the hydrogen to form water; the nitrogen unites with another part of the hydrogen producing ammonia; and the carbon is left behind as charcoal. This is the theory of the manufacture of charcoal whether it is made from wood, like common charcoal, from bones like animal charcoal, or from coal, like coke. This, also, is the reason why all animal and vegetable substances blacken when they are heated. When, however, a free supply of air is admitted, the substance burns away completely when heated sufficiently the, oxygen of the atmosphere uniting with the carbon to form carbonic acid gas. The same thing takes place, only more slowly, without the application of heat, the ordinary process of decay being nothing more than slow combustion the products of which are water, ammonia and carbonic acid. The vast beds of coal which are found in various parts of the world are, in all probability the result of the decay of vegetable substances from which the air has been excluded by some cause or other. The coals the carbon which has been left behind because there was not enough oxygen present to burn it away with carbonic acid. Under ordinary circumstances, plants decay without leaving any coal behind, because their carbon all unites with the atmospheric oxygen. When we remember how very essential an element of plant food carbonic acid is, we shall see the great benefit of this free circulation of air in all parts of the soil. It will be recollected, also, that the formation of nitric acid in connection with lime or some other strong base requires the free access of air. This also, is a most important process.

Drainage is also of great service in raising the temperature of the soil. If the soil contains much water, the evaporation of this moisture produces a considerable loss of heat and lowers the temperature of the soil considerably below that of the surrounding atmosphere. The texture of the soil, particularly in stiff clay land, is also greatly improved by draining.

COOL WATER FOR THE HARVEST.—One of the great discomforts of the harvest field, where ice is not used, is the mawkish warmth which the drinking water acquires after being carried out into the field. This may be easily obviated, however, and a cold draught always had. When the water is carried in large jugs, all that is necessary is to envelop them in several folds of coarse cotton or linen cloths kept constantly wet. The evaporation of the moisture in the cloths, keeps the vessel perfectly cool, and just in proportion as the evaporation be fast or slow. Thus the evaporation of ether or other exceedingly volatile substance in a draught is sometimes employed as an experiment to freeze substances in the hottest weather. And the experiment may be made, in a degree, by successively wetting the finger and holding it up in the breeze. If the harvest force be large and a barrel be used, it should be more thickly enveloped with cloths, and whatever vessel be used it should be carefully shaded, but is better if exposed to the air. Whenever water is taken for drinking, enough should be poured on the cloths to keep the evaporation perfect. — *Utica Herald*.

Entomological Department.

Pine-Borer Beetle.

A few days ago a large ash-colored beetle, about an inch and a quarter in length and having antennae stretching to a length of upwards of three inches, was picked off a gentleman's coat, while he was walking on King Street in this city, and was sent to us for identification. It is a specimen of the large Pine-borer (*Monochamus confusor* Kuv.), an insect that is abundant and very destructive in the timber regions of this country.

The grub, or larva, is of a white color with a black head, furnished with very strong jaws. It attains to a length of over two inches; its greatest breadth is about half an inch. The head is capable of being withdrawn to some extent into the larger succeeding segments. The grub issues from an egg laid by the female beetle in a crevice of the bark of pine trees, and bores into the solid wood, gradually excavating a long passage down into the heart of the tree. It continues at this work at least one summer, and during the operation may be distinctly heard for some little distance, when all is still at night. The sound is produced with great regularity and somewhat resembles that made by an augur boring into timber. Close to where we are writing at the present moment there is one of these larva at work in a scaffold pole at a building we are engaged in erecting; every night we hear it boring and chipping the wood in its burrow, and sometimes even in the day time we have heard the sound during a lull in the din of work. The noise is very remarkable and striking when a number of trees together are attacked by the insect. When the time for passing into the pupa state arrives, the grub gnaws a passage directly out to the bark, in order that it may have no difficulty in making its escape when its transformations into a beetle are completed. The portion of the cavity directly under the bark is usually stuffed tightly with its castings and fragments of wood, in order to keep out intruders and escape detection by the wood-peckers. The latter, however, are oftentimes too acute for the insect, and pick out the pupa when snugly encoined in its winter quarters.

The beetles frequently appear in houses a year or two after their creation, coming out of the timbers or joisting oftentimes to the great astonishment of the inmates. It is only the males that have such extraordinary long antennae, those of the females being only about the same length as the body.

Some years ago Mr. Billings, of the Geological Survey, gave a very interesting account of these insects, as he had observed them in the valley of the Ottawa. His papers were published in the *Canadian Naturalist and Geologist*. Our readers, we have no doubt, will be glad to read the following extracts from it, even though some may remember their appearance in one of the earlier volumes of this journal:—

"These insects attack dead timber, and also trees which have received some injury, and are in an unhealthy condition. I have never seen the female laying her eggs on a perfectly healthy and sound tree. Timber newly fallen is always attacked by them. The first dwellings constructed in the new settlements are generally made of logs with either the whole or a portion of the bark remaining on them. The inside is not plastered, except in the crevices between the logs; if these happen to be pine, the *Monochamus* lays her eggs in the bark, on the outside of the house, and for months afterwards the larva may be heard in the stillness of the night, making a noise like the boring of a small augur. The perfect insect sometimes comes out on the inside of the wall and suddenly drops down upon the floor, the table or the bed, to the great consternation of the inmates, who imagine that an insect with such great horns must bite or sting with proportionate severity.

"In the months of May or June, it often happens that great fires sweep through the woods, burning up all the fallen trees and dry branches strewn over the ground, and so scorching the living pines that most of them wither at the top and die during the season.

Trees thus injured are soon after attacked by these beetles, and within one year are so greatly bored that they are unfit for the manufacture of timber. Those experienced in the business, however, well understand the habits of the insect in this respect, and hasten to make the timber before it is destroyed. Pines scorched by the spring fires must be cut down and made into timber the next autumn; they would be sound enough for lumber five years afterwards, if it were not for the attacks of these formidable destroyers."

"Where there are only a few pines, it is rare to meet with more than two or three of these beetles together, but in the great forests of the Ottawa, it is not unusual to find 15 or 20 on a single tree. On one occasion I saw an extraordinary number; following an old lumber road through the woods in the neighborhood of Lake Clear, in the county of Renfrew, I came to a place which had been burned over sometime during the preceding spring. There was one large white pine standing on the sunny side of a small gently sloping hill. The height of this tree was about 120 feet, and its diameter nearly three feet; about 30 feet at the base was scorched. It was 60 feet to the lowest branch, and as nearly as I could judge, the foliage for twenty feet at the very top had turned yellow; the remainder was green and apparently healthy. The tree was swarming with *M. Confusor*, and many of the females were occupied in laying their eggs. I think there were at least 360 of both sexes, and I saw several flying from other trees 30 or 40 yards distant. The insects were on all parts of the tree: I had 50 or 60 crawling around me at once, and had a fine opportunity to observe the very considerable variation in the size of the individuals, and the length of the antennae. There can be little doubt but that this tree was totally destroyed during the next twelve months. If there were 150 females, and if each laid 200 eggs, and half of these produced a healthy larva, then in one year the tree must have been perforated by 15,000 galleries.

"I cannot say whether or not these insects ever attack a perfectly healthy and sound tree. I think they do not, and yet their ravages are certainly injurious to the commerce of this country, as they destroy a vast deal of the fallen or scorched timber, which otherwise might be brought to market at any time during several years after the trees have received their death blow by fire and storm. I think also that thousands of trees, only superficially injured by fire to throw them for a while into a weakly or unhealthy condition, would recover were it not for the attacks of these formidable creatures."

Caddis-worm Cases.

Very remarkable habitations are constructed by the larvae of the various *Phryganeæ* L., a tribe of four-winged insects, which an ordinary observer would call moths, but which are even of a distinct order (*Trichoptera*), not having their wings covered by the scales which adorn the Lepidopterous race. If you are desirous of examining the insects to which I am alluding, you have only to place yourself by the side of a clear and shallow pool of water, and you cannot fail to observe at the bottom little oblong floating masses, resembling pieces of straw, wood, or even stone. These are the larvae in question, well-known to fishermen by the title of *Caddis-worms*, and which, if you take them out of the water, you will observe to inhabit cases of a very singular conformation. Of the larva itself, which somewhat resembles the caterpillars of many *Lepidoptera*, nothing is to be seen but the head and six legs, by means of which it moves itself in the water, and drags after it the case in which the rest of the body is inclosed, and into which on any alarm it wholly retires. The construction of these habitations is very various. Some select four or five pieces of the leaves of grass, which they glue together into a shapely polygonal case; others employ portions of the stems of rushes, placed side by side, so as to form an elegant fluted cylinder; some arrange round them pieces of leaves like a spirally-rolled ribbon; others inclose themselves in a mass of the leaves of any aquatic plants united without regularity; and others again form their abode of minute pieces of wood, either fresh or decayed. One, like the *Sabella*, forms a horn-shaped case composed of grains of sand, so equal in size, and so nicely and regularly jammed together, the sides throughout being of the thickness of one grain only, that the first time I viewed it, I could scarcely persuade myself it could be the work of an insect. The case of *Leptoceras bimaculatus*, which is less artificially constructed of a mixture of mud and sand, is pyriform, and has its end curiously stopped by a plate formed of grains of sand, with a central aperture. Other species construct houses which may be called alive, forming them of the shells of various aquatic snails of different kinds and sizes, even while inhabited, all

of which are immovably fixed to it, and dragged about at its pleasure—a covering as singular as if a savage, instead of clothing himself with squirrels' skins, should sew together into a coat the animals themselves. However various may be the form of the case externally, within it is usually cylindrical, and lined with silk; and though seldom apparently wider than just to admit the body of the insect, some species have the power of turning round in it, and of putting out their head at either end. Some larva constantly make their cases of the same materials; others employ indifferently any that are at hand; and the new ones which they construct as they increase in size (for they have not the faculty, like the larva of the moth, of enlarging them) have often an appearance quite dissimilar to that of the old. Even those that are most careless about the nature of the materials of their house are solicitously attentive to one circumstance respecting them, namely, their specific gravity. Not having the power of swimming, but only of walking at the bottom of the water by the aid of the six legs attached to the fore part of the body, which is usually protruded out of the case, and the insect itself being heavier than water, it is of great importance that its house should be of a specific gravity so nearly that of the element in which it resides, as while walking, neither to become too heavy by its weight, nor by too great buoyancy; and it is as essential that it should be so equally ballasted in every part as to be readily movable in any position. Under these circumstances our caddis-worms evince their proficiency in hydrostatics, in selecting suitable substances, and, if the case be too heavy, gluing to it a bit of leaf or straw; or, if too light, a shell or piece of gravel. It is from this necessity of regulating the specific gravity, that to the cases formed with the greatest regularity we often see attached a seemingly superfluous piece of wood, leaf or the like.—*Kirby & Spence's Entomology*.

DESTRUCTION OF DESTRUCTIVE INSECTS.—Our correspondent in Gadsden County, Florida, under date of June 1, writes as follows. During the present week I have received reports from three different sections, of the county announcing the appearance of the dreaded caterpillar. These are doubtless sporadic cases, and furnish no basis upon which to predicate any ultimate result. While upon the subject I will state a fact, which is, at least, suggestive, and may lead to good results. Some years ago I was informed by Prince Murat (now deceased but who then resided on his plantation located fourteen miles east of Tallahassee) that his crops of cotton had been for several successive years protected from the ravages of the caterpillar by the intervention of numerous flocks of the common "black bird," which preyed voraciously upon these pests of the cotton-field. The secret of their advent to that locality he attributed to the fact that his negroes were in the habit of cultivating small patches of rice in the damp places, occurring in different portions of the plantation. As a confirmation of his statement, I will state a fact which came under my own observation during the past year. About the time that my corn had fully matured; the "grass-caterpillars" suddenly made their appearance in the fields, and were rapidly destroying the young grass, which was highly valued for fall pasturage. I observed at the same time that a large flock of domestic turkeys with their young came up on an evening when their crows were very much distended. Suspecting the cause I determined to watch them, and found to my great gratification that they were feeding upon the caterpillars. In the course of a day or two not a worm could be seen, and the pasturage was saved. These facts suggest the idea of introducing into the cotton-region the "English sparrow," which, I understand, has proved an effectual safeguard to the ornamental trees in the vicinity of many of the northern cities. From the reported habits and great fecundity of these birds, I entertain but little doubt that if extensively introduced, they would, in the course of a very few years, prove an effective antidote to the advent of this great enemy of the cotton-plant.—*Monthly Report of Dept. of Agriculture, Washington*.

The benefits which we derive from insects, though neither few in number nor inconsiderable in amount, are, if we except those of the silk-worm, the bee, and the cochineal, not very obvious, and are almost entirely beyond our influence. On the contrary, the injuries that we suffer from them are becoming yearly more apparent, and are more or less within our control. A familiar acquaintance with our insect enemies and friends, in all their forms and disguises, will afford as much help in the discovery and proper application of the remedies for the depredations of the former, and will tend to remove the repugnance wherewith the latter are commonly regarded.—*Harris*.

Horticulture.

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

THE ORCHARD.

Varieties of Apple.

It is usually a very perplexing matter with the intending planter to decide upon the varieties of the several fruits which he will plant. This perplexity arises usually from a want of sufficient acquaintance with the qualities of the several sorts brought to his notice from which he can choose, and in some measure from an imperfect knowledge of his own wants.

The first thing the planter needs to consider is where he plants. Such is the variety of climate embraced within the Province of Ontario, that it is very important to remember whether one purposes to plant in the County of Renfrew, or in the county of Essex. Varieties that will thrive well and bear abundantly in Essex, may not be able to endure in Renfrew for a single season. In some countries there is a very marked difference between one portion and another. The climate at Owen-Sound in the county of Grey, is very different in its effect upon the raising of fruit from that of Egremont and Proton, in the same county. If fruit trees have been planted in the vicinity long enough to test their adaptation to that section, an inquiry concerning the kinds that have given the most satisfaction, and those that have not succeeded in the hands of others will be sure to elicit valuable information. One may safely plant freely of sorts that have been found to do well in the grounds of a majority of his neighbors, while he sets sparingly those that have usually failed. If he can not be guided by the experience of neighbors who have planted before him, he will need to make comparisons on a broader scale, and by the study of such publications as treat of fruit growing in Canada, inform himself as to the varieties that seem to be most likely to succeed in his locality.

Then the planter needs to consider why he plants. Great mistakes are made because this point is not carefully weighed. If he plants merely for domestic use he will plant very differently from what he should if planting for market purposes. If planting for market he will need to have decided whether for a near or a distant market, and if a distant market, whether it be a home or foreign market, and in all cases what sorts are best suited to that market. We have no markets that will consume an unlimited quantity of summer and autumn apples and pears, hence it is necessary to plant sorts ripening at these seasons with judgment, and to select such as are most saleable, or likely from their known qualities to prove saleable in the expected market. In truth this selection should be made after careful consideration of the peculiar demands of that market, or those markets in which it is expected the fruit will be sold, whether the sorts be those ripening in autumn or keeping through the winter. In some markets sweet apples are in demand, and consequently find a ready sale; in other markets, they can with difficulty be given away. In Great Britain the Ribston Pippin will command a higher price than the Baldwin or Guernsey, or Roxburg Russet, while in Chicago either of the three is in greater demand.

These questions having been fully considered and intelligently answered, the planter will be able to approach the subject of what varieties to plant, with a knowledge of what qualities those varieties should possess. If his location be where the winters are severe, and where some varieties, whether of apple or pear, are frequently injured by the cold, he will know that all those varieties which are generally reputed to be tender, should be either avoided altogether or planted with caution. If he be planting merely for

domestic use, he will select those varieties which suit the tastes of the family, and which will ripen in succession so as to prolong, as much as possible, the season of fruits. If it be chiefly for market that he plants, he will select those varieties which will be likely to please his customers and to thrive in his locality.

The climate of that part of Ontario lying between and adjacent to the great lakes, is the most favorable for the production of apples in great variety. Of this part, that which lies between Lakes Erie and Ontario, and adjacent to the north shore of Lake Erie, embracing the counties of Lincoln, Welland, Haldimand, Norfolk, Elgin, Kent and Essex, and the southern part of Wentworth, enjoys a climate that will grow in perfection a greater number of varieties than any other part of the Province. But nearly if not quite all the really valuable varieties of apple can be easily grown in Brant, Oxford, Middlesex, Lambton, Wentworth, Halton, and those parts of Huron, Bruce, Grey and Simcoe, Peel, York, Ontario, Durham and Northumberland, which lie near the water. In Perth, Waterloo and Wellington, and those parts of other counties which lie beyond the influence of our large bodies of water, the climate sensibly affects quite a number of varieties of the apple, so that one intending to plant has occasion to inquire whether a particular variety is sufficiently hardy to endure without injury the severity of the winter. As we move further north and north-east, the number of varieties that can be successfully grown very rapidly diminishes, and points are soon reached, especially back from the River St. Lawrence, where only the most hardy kinds can be grown at all.

From this birds-eye view of the Province in its relation to the growing of apples, some idea may be formed of what sorts may be expected to thrive in any given locality. When we have ascertained the effect of the climate on our apple trees, we have also some general principles to guide us in regard to all other fruit trees, for knowing that pear trees are more sensitive to cold than apple trees, and Bigarreau cherry trees than pear, and peach trees more sensitive than any of these, we can tell what may be expected in reference to these fruits.

But coming down to a more careful scanning of our varieties of apple as they stand related to the wants of our fruit raisers, we will first consider those most useful and desirable for domestic use, and afterwards discuss the characteristics of those suitable for market purposes. In planting apple trees to furnish fruit for the family, a much wider range of varieties will be wanted than in planting for market, because it is desired both to have fruit ripening in succession, so as to furnish a continuous supply, and to gratify the various tastes and preferences of the several members of the family. Beginning then with those ripening earliest, we will pass in review the more desirable varieties that are grown in Ontario, from which selection may be made to suit various tastes so that the family need not be without apples all the year round.

Early Harvest.

This variety is mentioned first because it is the best very early sort we have. In the warmer parts of the Province it begins to ripen in the end of July, and continues for about three weeks. The time of ripening will of course vary, to correspond with the variations of temperature in different seasons and localities. It is grown in the counties of Peterboro, Frontenac and Grenville, with some degree of success, though the trees sometimes suffer from the severity of the winter in those northern sections. In some seasons in certain localities this apple is badly spotted with black spots, which cause the fruit to crack open and drop off before it attains its full growth, the fruit thus affected is flavorless and of no value. When ripe, the apples are of a bright straw color, with a white flesh, which is very tender, juicy and rich, having a very pleasant, sprightly sub-acid flavor. It

is excellent for cooking and for the dessert, and in small quantities will sell well in a near market. In sending it to market it needs to be handled with great care, as it is easily bruised, and slight bruises badly mar the appearance of the fruit. We can not advise any one to plant this variety for market purposes; a tree or two will give a supply for domestic use, and if there be a surplus, that may be sold in the nearest market.

Red Astrachan.

The trees of this sort are more hardy than those of the "Early Harvest," and may be planted in all parts of the Province with good hopes of success. It does not begin to ripen quite as early as that variety, nor is the fruit quite so rich in flavor; yet it is an excellent cooking apple, and when perfectly ripe, "very good" in quality for the dessert. It has the advantage of being exceedingly handsome, uniting brilliancy of coloring to symmetry of form, and freedom from blemishes, and hence is a very saleable summer apple. Those who live near a good market might safely plant a few trees of this sort for that purpose, keeping always in mind that the fruit will not keep, and must be speedily placed in the hands of the consumers. A couple of trees will be quite sufficient for ordinary family use, as they bear large crops, which ripen up gradually, it being often a month from the gathering of the first ripe specimens to the final conclusion of the crop.

Tetofsky

Possibly this variety will be found to be even more hardy than the "Red Astrachan," and as it ripens a little earlier, very nearly at the same time with the "Early Harvest" it will be a desirable variety to plant where "Early Harvest" does not succeed well. In point of richness of flavor it is not quite equal to either of those already named; but we are sometimes obliged to accept some deficiency of quality that we may have fruit at all. From what we know of the hardy character of the tree, we believe it will thrive in any part of Ontario, even in the trying county of Renfrew. It begins to bear fruit at two and three years of age, and in those places where it has been grown, yields very large crops every year. It is a very handsome apple, of medium size, beautifully striped with red on a yellow ground and covered with a light bloom. The flesh is white and juicy, with a pleasant sprightly acid flavor. It makes a capital cooking apple. We strongly advise those who live in the colder parts of the Province to give this apple a trial, believing that they will find it the best early ripening sort for their climate.

Benoni.

Before the "Red Astrachan" apples are gone this variety begins to ripen, and continues to furnish a supply during a large part of the month of September. The fruit is hardly as large as that of the "Red Astrachan," but it is very showy, being very handsomely striped and marbled with dark crimson on a rich yellow ground. The flesh is yellow, tender, juicy, and of a pleasant sub-acid flavor, ranking in quality as "very good." The tree is an early and abundant bearer, and so far as it has been tested, has been found to be perfectly hardy. There is no doubt but that it will thrive wherever the "Early Harvest" can be grown, and probably though this point has not yet been decided by actual experiment, and therefore we say probably—as hardy as the "Red Astrachan."

Sweet Bough.

In most families there are some who prefer sweet apples, and when baked, most persons relish them. We therefore name this as by far the best summer variety in cultivation. The fruit is large, light yellow, juicy, tender and good, ripening all through the month of August and early part of September. The trees are sufficiently hardy to thrive well in the county of Northumberland, especially near the lake.

Duchess of Oldenburg.

Before the "Sweet Boughs" are all gone, this beautiful apple begins to ripen, and although it is a

little too tart for table use until it is thoroughly ripe and mellow, it can not be surpassed in its season for cooking. It comes into use in September, just after the "Red Astrachan" are gone, and fills a place in our early autumn apples not occupied by any other. The fruit is large, handsome, showy, commanding a ready sale in any market. As it does not keep long, we can not advise any one to plant it largely for market, but a certain quantity will always find willing purchasers, attracted both by the pleasing appearance of the fruit, and its excellent cooking qualities. The tree is very hardy, enduring triumphantly the cold of even the far north-west, and bears young and most abundantly. The fruit is of a very uniform size and remarkably free from blemishes. We strongly advise every planter to set out a few trees of this variety, believing it will give great satisfaction in all parts of the country.

We have now named six of our best and most valuable early ripening sorts. Those who reside in the more favorable apple growing districts will find that the Early Harvest, Red Astrachan, Sweet Bough and Duchess of Oldenburg, will keep a family well supplied with apples from the latter part of July to the middle of September. In some places it may be necessary to plant the "Tetofsky" instead of the "Early Harvest," and some may wish to plant the "Benoni," in order more perfectly to fill out the supply between the "Red Astrachan" and "Duchess of Oldenburg;" but whoever plants a tree or two of each of these six, will surely have no lack of fruit during this part of the year.

THE FRUIT GARDEN.

Profits of Strawberry Raising.

Writing to the *Cleveland Herald*, F. R. Elliott says that the strawberry crop in and around the vicinity of Cleveland has been one of great abundance, but by reason of the drought it has been of short duration. The cost of raising strawberries, according to the best of his information, is about sixty cents per bushel for labor of cultivation and interest on value of land, that is, provided the crop is a good one. Drought, excessive rains, frosts, etc., etc., affect the chances of a good crop, and the strawberry grower occasionally goes under, pecuniarily. The cost of picking he puts down at sixty-six cents per bushel, marketing at thirty cents, making a total of one dollar and fifty-six cents per bushel as the actual cost of growing, picking, and marketing a bushel of strawberries. The prices ranged this year, during the first week, from seven down to four dollars per bushel, but on one day an excessive supply was thrown on the market which brought prices down to an average of two and a half dollars. After that day the supply fell off, and prices rose, but only those whose plants were on a deep, rich, loamy soil were benefited by the rise in price. Those whose plants were on sandy soil, or strong clay, were unable to pick at any profit, owing to the severe drouth. It will be seen from this that the margin of profit, according to Mr. Elliott's figures, was ninety-four cents per bushel at the time of greatest supply.

The Picking and Marketing of Raspberries.

There are many little things about picking and marketing raspberries, that are learned by experience, which it would be to the advantage of the novice to know. We would prefer women, or nearly full-grown girls for pickers. Small children can not overlook the tops of bushes, and will be liable to miss some of the berries, besides they do not sufficiently value time.

It is quite important that when the canes are picked over they shall be picked clean, as it will be days before they will be picked again, and those missed will very likely be injured. A few mouldy or rotten berries in a box will soon spoil the entire box, and injure the flavor of the other boxes in the crate. Small children, and especially boys, are not apt to be conscientious about picking clean.

We usually pay two cents per box for picking raspberries, and we generally manage so as to have them thick enough to enable the pickers to make good wages at such rates. In order to insure this, we pick about one-third of the plantation every day, and that allows the berries three days to ripen in, before they are picked again.

The foreman should insist that the pickers fill every box full by picking into it, and not to partially fill them when picking, and then complete the filling when removing them into the crate, by pouring from one into another. The latter course not only muddies the berries, but leaves them so loosened up in the boxes, that when they come to settle the boxes are not well filled.

When picking to supply a home market, it is well to take them in about four o'clock, that customers may have them fresh for tea. If desirable to have the pickers pick all day, those picked in the latter part of the afternoon can be put into a cool cellar, and taken into market early in the morning. We are of the opinion that even black raspberries will command a price this year that will make them remunerative, and that those who are properly situated and constituted may engage in the business of small fruit growing, with a fair prospect of finding it a paying business in the future. *Rural Home.*

The Purple Beech and Filbert.

Form, lines of grace and curves of beauty arrest attention; but color fills the eye and gratifies the senses. Garden scenery is brightened immensely by means of color. The leaves of the new-born summer, the matured ones of autumn—how much they owe to delicate and multitudinous coloring! But for fresh tenderness of touch, that neither painting nor word coloring can reproduce, commend us to the luring buds of April—the newly unrolled beauty of May leaves. Among these, what more beautiful than the Beech and the purple leaved Filbert? There are two or more varieties, of each, one larger and of more substance than the other. In fact, of the Beech there are many varieties, for the red reproduces itself from seed, and in a batch of seedlings there are tints of many degrees, ranging from dull greens to those of almost fiery glow. We have, however, never yet seen a seedling to equal in brilliancy the common variety, which is mostly increased by grafting it on the common Beech; and another with larger leaves, that keeps its color later in the autumn. But purple Filberts are easily multiplied by means of suckers—a mode of increase not always to be depended upon in purple Beeches on their own roots. Beeches seldom produce suckers, yet they occasionally throw little bunches up from the surface roots, and I have seen these green on purple seedlings, and purple on grafted plants—rather a singular circumstance. The Filbert is also so fully purpled over and through that we never remember to have seen it throw out a green sucker. It is most useful in shrubberies, contrasting admirably with such plants as lilacs, laburnums, gelder roses, deutzias, &c. It seems actually to glow with the intensity of its coloring, and is to the fore and middle ground of shrubberies what the taller Beech is among other trees. The Beech has a soft fluffiness and semi-transparency about it that the Filbert, glorious as it is, lacks; and the richest coloring treatment—a very feast of glowing magnificence—is spread around every far-reaching purple Beech. One of the best modes of enjoying it to the full is to put the trees between the beholder and the sun, and look through the leaves towards him soon after he has risen, or a few hours before his setting. The purple is thus flooded with golden magnificence, and each leaf and branchlet is set off to admirable advantage. Purple Beeches are especially rich as foreground to masses of green oaks, elms, or other deciduous trees; or set against larches, birches, or limes, the light foliage of these or the flowers of service trees, wild crabs, pears, apples, &c., give a deep tone to the glowing purple. Further, the young leaves especially, contrast admirably with most conifers; though it must be admitted that the darker hues of the purple Beech in autumn become too sombre accompaniments for most pinuses. The place for the purple Beech is the background of shrubberies, home plantations, belts, the park, and even the woods and forests; for the purple Beech is not weakened by its color. It grows as fast, and forms timber neither better nor worse than any other any other Beech, and assuredly its more general use would give a glow to forest scenery that would add much to its beauty, and to the breaking of its dead monotony of color as well as form. Clumps of purple Beech here and there would change the face of our landscapes, and render them more agreeable without their being one whit less profitable. What with our want of direct sunshine, and our dripping clouds, and leaden skies, we have often a deficiency

of cheering color, and there could hardly be an easier and cheaper method of supplying this want than the planting of our copses with groups of purple-leaved Filberts, and our woods with purple Beeches.—*The Gardener.*

Cultivation of Nut Trees.

Little attention has thus far been given, says the *Oncida Circular*, in this country, to the cultivation of nut-bearing trees. It is, however, said by some, that the yield of nut orchards in nuts and lumber would pay a good percentage on the capital invested in them, especially if the trees were planted on rough, hilly land, not suitable for meadow and the production of crops requiring much hand culture.

For the purpose of showing that those who may engage in the enterprise will not necessarily have to wait a lifetime in order to see the fruits of their labor, I will state a few facts in regard to an experiment on a small scale. Eighteen years ago, one dozen trees each of the hickory nut and the black walnut of moderate size were obtained from a nursery. The trees were mostly set out by the road side, in rather a hard, gravelly soil. They received no culture, and for a year or two success seemed doubtful. However, all but one survived, and finally became established. The hickory trees have grown nuts for the past two years. One tree, a year ago, produced three and a half barrels of nuts, as they came from the tree. The trunks of some of these trees measure one foot in diameter near the ground.

About the same time that these trees were set out, some chestnuts were planted in the seed bed. From these, trees have been produced that have borne nuts the past two years, making about sixteen years from the seed to the bearing state. But it is by no means necessary to wait even this length of time for results; trees can now be obtained at the nurseries by the thousand, of suitable size for planting. These if the work has not already been done, may be grafted, taking scions from trees that are known to produce the largest and finest nuts. This process would considerably shorten the time before bearing, also secure the all-important end of producing the most valuable nuts.

Now as to the market value of nuts:—It is known that the price of edible nuts has steadily increased as they became more and more scarce, until at the present time our native chestnuts sometimes bring in the market the sum of ten and twelve dollars a bushel; hickory nuts, four dollars, while Spanish chestnuts, I am told, are worth from fifteen to eighteen dollars a bushel. The latter variety may also be grafted on our native stock if desirable. It is not as hardy as our native chestnut, and would require the advantage of more favored localities.

Treatment of Raspberry Bushes.

Raspberries are, perhaps, more liable to suffer from lack of moisture than from any other cause. They like a soil, therefore, which can be made just before and during the fruiting season, to contain a permanency of rain, or irrigation, without too much stagnation. They will, for the above reason, succeed pretty well in a half-shaded situation; but the fruit that case never attains that high flavor, so much esteemed in the raspberry. We have, it is true, some highly improved kinds of the raspberry at present in cultivation. The *Fastolf* is a very fine fruit which has long bearing properties, for it continues longer in bearing than the *Red Antwerp*; appearing to partake in some degree of the double bearing, or *Everbearing Ohio*. Those who desire raspberries as late as possible, should prune some of the canes back, to later eyes, or buds, after the bushes have sprouted an inch or two. This forces them to sprout lower down the stem. Of course the latest raspberries like liberal manurings; indeed they should have a little annually, and no digging over the roots should be permitted.

The raspberry is of a prodigiously prolific character. We have in many cases a score or more of suckers, where only five are ultimately required. Those suckers must be understood to be robbers in a certain sense. Our readers may rely upon it, that every sucker, detracts, not so much from the parent stem immediately, but from the virtues of the soil, or compost around the original stem. Therefore, let everyone who can spare time pull away every sucker not wanted, the moment they can fairly handle them, and they may rest assured that they are removing what would ultimately detract from the fruitful bush.

The soil should be that of a strong loamy character—a darkish colored soil, rather greasy after rain.—*Rural Press.*

My Little Flower Garden.

BY MAY LINDEN.

My flower garden is the delight of my eyes and heart. In front of my sitting-room windows is a small oval bed, where a half-dozen tea-roses and as many geraniums find a pleasant home, also a heliotrope, a fuchsia, and two lilies. The sweet-scented honey-suckle and the lily of the valley and aakibia. In a corner of the yard is a ground where gay nasturtiums, white and blue convolvulus and portulacacs of many colors are expected to make a grand display.

"Killing with kindness" has always been my favorite style of murder with garden pests, but this season I determined to reform in this particular, and to allow these treasures to enjoy life in their own way.

But my plants did not thrive. I could not stand this. A careful examination of my rose-bushes revealed those horrid little green bugs who put on so exactly the hue of the plant they feed upon, that one must look sharp to detect them. The convolvulus plant also, which had grown finely, and which were crowned with pretty buds of different sizes, did not blossom, and looking closely into these clusters of buds, I found the large ones invariably eaten off just as they were ready to open, and within them perfidious green worms who were at the bottom of all the trouble. In the first place I tried hot water, which I had just seen greatly recommended for such cases, but with no effect whatever. Perhaps it was not hot enough, but I feared to apply it any hotter, and neither bugs nor worms paid the least attention to it. Then a cake of tobacco soap was hunted up, and preparing the solution, I filled my watering pot, and about sunset proceeded to pour it freely over the heads of convolvulus buds, over every rose-bush, and everything else that looked unthrifty. There was a decided movement on the part of the intruders, and efforts to "quit" were very apparent. After a most thorough drenching, I left matters to adjust themselves. The next morning as I glanced from my window, I beheld several blossoms of convolvulus opening to the summer morning, and going out to examine, I found that many of these were partly eaten off by their foes, but what remained had opened bright and free, and every morning since, quantities of these fair flowers have danced in the sunshine perfect in form and color, and not a worm to be seen.

The green bugs had left the roses also, and soon these mustered courage to put out new buds, and all the plants have improved amazingly. To those who may wish more definite information on this (to me) most interesting matter, I would say that this tobacco soap is prepared in cakes of about a pound in weight, and may be obtained at any horticultural store, and often at druggists. I take a piece about an inch square to a quart of water. If the water is warm, it will sooner dissolve, but cold water answers very well.

After standing an hour or two, the water will be of a brownish tint, and after being well stirred may be freely applied, not injuring the leaves or buds of any plant upon which I have tried it. I find one application enough in many cases, but I administer it once in a week or two, as it does no harm, but on the contrary much good. It has not the "odors of Araby," but as tea-roses, those miracles of delicate fastidiousness seem to enjoy its presence, I have concluded to not dislike it, and indeed it is not very disagreeable, not half as rank as the disgusting pests whom it so speedily exterminates.—*Christian Weekly*.

How to Construct a Cheap Green-House.

Mr. Berekmans, in the *Farmer and Gardener*, gives the following directions:

A good green-house, suitable to an amateur horticulturist, can be constructed at far less expense than is generally thought.

We will suppose that our reader needs but a small house, say 25x12 feet. Our plan for this size would be to sink the floor two or three feet below the level of the soil; this has many advantages over houses built entirely out of the ground. The foundation walls should be made of brick, or where the material is at hand, of concrete. If the latter is used, dig a trench one foot wide to the required depth; line the inside with rough boards and fill up with stones, gravel and mortar. The soil of the inside can be dug out afterwards, and this will give a solid and economical foundation. The roof should be what is termed span roof. We object to lean-to or single pitch houses. Plants will require more attention in the latter, and must frequently be turned to prevent

growing one-sided. The floor is equally distributed in a span roof house, and is at a this drawback.

The roof should be formed of portable sashes, seven feet long by three or four and a half feet wide. Every alternate sash is secured fast to the sill and ridge pole. The others are raised and lowered by an iron bar attached to the sash by a staple. The bar can be hooked upon an iron pin in the ridge pole when the sash is open for ventilation. The interior arrangements of the house consist of a table of four feet wide on each side, leaving a walk in the middle. The ends of the house are to be of inch plank. A common brick flue running on one side of the house will answer for all necessary heating apparatus. The flue to be of bricks placed edge upon edge. When bottom heat is required to propagate plants or for other purposes, it is advisable to board up the side of the table under which the flue runs, one board to be hinged so low as to throw the heat all over the house if needed.

The tables are to be covered with an inch of sand upon which the pots are placed, and in a house of this description nearly all classes of plants can be grown. We do not advise, however, to keep the temperature at a high degree, especially if a miscellaneous collection of plants is placed in the house, as it would not suit hard wooded and half hardy plants to be forced in vegetation early in the winter, but advise that fire will only be made to keep the thermometer from getting too low in extreme cold weather. A simple covering of gunny bagging rolled on the outside of the glass during the night will, in ordinary weather, be sufficient to keep the temperature at the desirable degree without fire heat.

The cost of such a house need not be over \$150, if constructed in a plain but substantial manner. Where the work is partially performed by the amateur, a less sum will cover the cost of construction.

Now Roses.

Of the new roses that have already been shown this season, I must give the palm to Hybrid Perpetual Star of Waltham, a seedling raised by Mr. William Paul of Waltham Cross. This is a very fine pale bright red colored flower, very full, with great depth of petal, and an abundance of them in it; habits vigorous and free. As seen at a recent meeting of the Royal Botanic Society, this flower was as near perfection as a rose could well be. Hybrid Perpetual Mons. Claude Loret is also remarkably fine; color shaded rose flushed with violet; large and full, and with a good free habit. Hybrid Perpetual Madame Jarnai is another splendid flower, and its beautiful pale bluish pink tint will be certain to render it acceptable to everybody. If the testimony of our leading rose-growers be of any value, this will prove to be one of the best of the new roses just being put in commerce. A thorough good rose is Hybrid Perpetual Etienne Loret, and this so completely established its character as a good autumnal flower that its general good qualities may be taken for granted. This is of a shaded brilliant rose hue, flushed with violet; the habit appears to be all that could be desired. Tea Madame Cecille Berthod is a beautiful bright pale yellow flower, of remarkably fine build and substance, and a free grower; it is a variety showing the possession of a great deal of refinement. Tea Madame Camille has full and finely cupped smooth flowers, with a great depth of petal; the color bluish on the exterior, with a bright salmon buff centre. Tea Madame Jules Margottin is a charming Tea rose, the circumference of the flower flesh white; the centre primrose and nankeen; in the bud state it is simply perfection; the habit is vigorous and free, and it has a most desirable upright growth.—*Quo, in the Garden*.

THE KITCHEN GARDEN.

Cultivation of Beans.

The soil on which beans seem to do best is a clay loam, but they will do well on any mellow, loose soil, where there is not too much vegetable matter, which will produce an overgrowth of vines. A sandy loam will generally produce the finest quality, but not the largest product. It is also important that the soil be of uniform quality, so that the crop will come to maturity evenly, as uneven ripening is apt to injure the quality, or result in waste in harvesting. If any portion of the pods are green at pulling time, they are liable to injure and turn black, which greatly injures the quality; or if the crop is allowed to stand till all are ripe, there will be loss in shelling of those that are over-ripe. A heavy clay soil is as unsuited for bean culture as for corn, and can not be made profitable for either; and yet in wet seasons some very fair crops have been grown on stiff, heavy soils.

The preparation of the land is not unlike that for

corn, excepting that it is not well to apply active stimulating manures, causing an over growth of vines, which would so cover the ground as to exclude the sun's rays would be most sure to damage the quality if not the quantity of the crop. Wherever the pods fall to the ground, the beans will be colored, or if only the end of the pod touches the ground, when ripening, one or two beans will be black, which necessitates hand-picking, and lessens the value of the crop. This can not be well avoided if the weather be wet about the time of ripening; but a heavy growth of vines renders the liability to damage greater.

It need not be told to any practical farmer that to make the cultivation of the crop easy the land should be clean, well plowed, and made fine and mellow by repeated harrowing. Good ground is a good preparation of land, and will generally afford an easy tillage as any; and if fall plowed and well worked up before planting it will be less weedy; but the common practice is to let the bean ground lay till after corn planting is over, then turn over the land for beans. After the land is fitted for the seed, it should be marked one way, the same as for corn; though only every second row need be marked if the planting is to be done with the common bean planter, which plants two rows at a time, and thirty inches apart. It is an object to mark the ground straight and even, so that the cultivator may be run close to the rows and not disturb the plants. It is a practice of many farmers to roll the ground before or after planting to render the soil fine and smooth so that cultivation can be done without liability of throwing small lumps on the plants, and if done before planting, the seed is more perfectly and uniformly covered. The time of planting is usually from the 25th of May till near the first of July; but if planted late the early varieties are safer, as there is danger of early autumn frosts injuring them.

The quantity of seed planted per acre is about one bushel of the marrows and mediums, and a half bushel of the late variety. The planting machines used are calculated to drop from four to six beans in hills one foot apart, and rows two and a half feet apart. As soon as the beans are up some four inches high, so that the rows can be easily seen the bean cultivator is run through, as near the rows as is possible without covering the plants. The common corn cultivator is sometimes used, but it will not work as close to the rows without danger of covering or tearing up the beans. The teeth only of the bean cultivator are different; they are made like common harrow teeth, with points flattened to about two inches in width, turned forward so as to cut weeds and stir the soil without throwing a furrow to cover the plants. Nine of these teeth are used on a cultivator. Two or three times passed through the rows, at proper intervals, is all the work necessary in cultivation if the land is clean; but if thistles or weeds are bad in the rows, hand-weeding is required to clean them out.—*Am. Rural Home*.

PLANT OFFERS.—The *Cincinnati Gazette* gives the following advice: One of the best rules the farmers or gardeners can follow to insure success in getting a good stand of tender crops is to plant often. Take for example, melons, squashes, cucumbers, Lima beans, and such other products as may be desirable to start early, and which often fail when planted early, and apply the rule at the head of this article, and success would be certain. Fit your ground early; make broad, rich, flat hills, slightly crowning, to insure dryness and gain warmth. Then plant early in the season, and one week later put down a few more seeds in the hill with the thumb and fingers; a week later repeat the planting, and, if the season be particularly cold and backward, and the first plantings do not appear, a fourth may be necessary. By this method success is rendered certain; but little time is lost, for the later planting will grow so fast as to overtake the first. At the proper time thinning must be done, and the crop is then handsomely started off on its journey.

The *Meal and Monitor* is informed that Mr. Thomas Jordan, Ephraim, has in his garden Early Rose potatoes of this season's growth, not six weeks planted, which measure four inches in circumference the smallest way.

PLANTING SLIPS.—The *Gazette des Compagnies* recommends to dip the extremities of the slip in collodion, containing twice as much of cotton as the ordinary material used in photography. Let the first coat dry and then dip again. After planting the slip, the development of the roots will take place very promptly. This method is said to be particularly efficacious in woody slips, Geranium, Fuchsia and similar plants.—*Farmer's Union*.

The Dairy.

Milking.

Milking is an art that requires to be learned as much as any trade. An expert will, at sight, detect an unskilful hand as readily as a farmer would distinguish a want of acquaintance with the use of an axe or a scythe by seeing one attempt to use either of these articles. Any one who determines to do so, can milk a cow, or use an axe, or a scythe, after a fashion, but to do either to the best advantage, requires skill and experience.

There are three distinct points to be regarded in milking. The first relates to the treatment of the cow; the second to cleanliness; and the third to the manner of extracting the milk.

The cow is naturally sluggish in her movements, and should not be hurried out of her natural gait. She should never be driven to the place of milking faster than a walk, and if she has far to go, the walk should be a slow one. Hurrying a cow when she is full, and the weather warm, hastens the circulation of her blood, and heats both her blood and her milk. A very little heating of the blood perceptibly affects the milk. It increases its odor as well, raises its temperature, and modifies the butter or cheese made from it. On this account driving cows with a dog is not to be recommended. We have seen the milk of a dairy numbering over 30 cows, perceptibly affected by the milk of a single cow driven in haste by a dog. She happened to be out at night and was accidentally left in the lot a hundred and fifty rods distant, when the herd was driven to the barn. Against our protest, a dog was sent after her and she came running to the barn, panting and frightened. In 10 or 15 minutes afterwards she gave about six quarts of milk instead of 10, hot and odoriferous. It was mixed with the rest of the milk, and as was then customary, left through the night without any other cooling than it got by stirring. The extra odor of the feverish milk, acting as a ferment in the slowly cooling mass, made its impress upon the milk and curd of the next day. The milk of this cow was not regular till after several milkings. This was an extreme case. Less heating and worrying produces less effect, but never fails to do injury.

Unless the number of cows is very small, and they are all very quiet and peaceable, they had better be fastened in a milking barn or shaded stalls, rather than to be milked in an open yard. A large herd requires a yard so large as to give too much chance for dodging, running, hooking and disturbing each other. It soon becomes trod up and filthy, especially in moist weather. The practice of milking in open yards is rapidly going out of use, especially in large dairies.

All harsh and violent treatment should be entirely avoided. Pain and fear, worrying and solicitude, are clearly detrimental to milk secretion, and never fail to make the cow hold back a part of her mess, if they occur at the time of milking. Kind and gentle treatment and quietude promotes secretion, and are absolutely essential to drawing all the milk.

Cleanliness.

So much has been said and written in regard to cleanliness in milking, and it is so obvious that milk which is to be used for, or to be manufactured into, human food should be perfectly clean, that it seems almost superfluous to call attention to the subject. But in spite of all that has been said, filthy practices creep into use. One of these is milking in the rain or when the cow is so wet that the water will run down her sides and drip into the milk pail. The hair and skin of the cow are covered with accumulations of perspiration, and to soak these up and rinse them down her sides into the milk, is as injurious as it is filthy.

Another defect sometimes occurs from not thoroughly cleansing the teats and udder before

beginning to milk. A thorough brushing is always necessary to get off the loose hairs and dirt, and if the teats have become otherwise filthy, they should be washed, but not milked till they are dry. A pail of water and a cloth should always be at hand for this purpose. When milking is done in a stable, there is sometimes a neglect to provide absorbents to soak up liquid excrement, and to prevent spattering. This is both a violation of cleanliness and wasteful. It can easily be guarded against by the use of straw, sawdust, dried muck, or something of the kind. Still another filthy practice is that of drawing a little milk into the hand and waiting the teats with it before beginning to milk. Some milkers insist that this is not uncleanly; to which it is only necessary to reply that any person whose sense of neatness is so obtuse as not to discover, without argument, that the practice is a filthy one, is unfit either to milk or work about a dairy.

Besides objections on the score of filth, the first milk drawn contains so little cream and so much saline matter, that it makes the surface of the teats, dry and harsh and inclines them to chaps. If, after the milking is done, the pail is set aside and the teats wet with some of the very last strippings, that are little else than cream, there would be less objection to the practice.

To mention in detail all the points that offend against cleanliness would be tedious. They must, for the most part, be left to the milker's sense of neatness, which certainly ought to be of an appreciative character. Uncleanly milking is quite too common. If all the milk of which butter and cheese are made could be taken to the dairy-house as undefiled as it exists in the udder, the price of these luxuries would be at once materially advanced.

Drawing the Milk.

The manipulations in milking are best learned by practice. But there is philosophy in milking as well as in everything else, and a right and a wrong way of doing it, and because the right way is the best it should be pointed out and followed. However plain and simple the art of milking a cow may be considered, the particular manner in which it is done may have much to do in modifying the profits of the dairy.

A description of the internal structure of the udder will explain the reason for certain directions insisted on as essential, which might otherwise appear unimportant. The udder is divided into four parts, entirely distinct from each other, except as they are held together by membranous ligaments.

The milk in each is held in confluent tubes, which, like the roots of a tree, are all contracted into one, just above the teat; the milk entering that funnel-shaped organ by a single channel. Just at the upper end of the teat the walls of this channel are contracted and the contraction is surrounded by a band of muscular fibres. The will of the cow can operate on this band, contracting or expanding it at pleasure, making it operate like a valve. At the junction of each smaller tube with a larger one, is a similar contraction and band, also under the control of the will. Ordinarily, these bands are contracted (as in the neck of the bladder) so that the milk has to crowd its way through them to get from the smaller into the larger tube.

This is an admirable arrangement for sustaining the weight of the milk equally in all parts of the udder, and preventing it from pressing heavily upon the teats.

When the udder is full, if the milk is drawn out of the teats, relieving the pressure in them, it requires a vigorous effort of the will of the cow, to prevent the pressure above from crowding the milk down to fill the vacancy. If the udder is only partly filled, she can hold the milk back more easily; and the less there is in it, the more easily can she maintain the tension of the muscular bands necessary to prevent entirely the milk from flowing through them. When the

milker first takes hold of the teats and begins to milk, the excitement causes the cow to contract the bands so firmly as to hold back the milk perfectly for a time. But presently this vigorous contraction will begin to slacken, and the milk will begin to pour through, and if all is quiet, she will relax the bands fully, when the milk settles down upon the teats, and if quickly drawn, it can be all milked out to the very last drop.

But this perfect relaxation will only last for a short time. If the milk is not soon extracted, she will begin to tighten up the muscular bands again, and the last part of her mess will be held back and permanently retained, when the milker probably thinks he has got it all, because it stops coming. A cow should, therefore, be milked quickly as well as quietly. It is natural for her to part with her milk in a few minutes. A calf will draw a large mess of milk in three minutes, and a milker should come as near that time as possible. If the time of milking is much prolonged she will become impatient and be sure not to "give down" perfectly. The quickest milker gets the most and the best milk, because he gets all the "strippings," which are the richest part.

The more quiet and peaceable the cows can be kept while being milked, the more perfect will be the relaxation of their udders and the longer will it last. If anything occurs to disturb or excite or attract their attention, the relaxation will cease in a moment, and if it occurs near the close of the milking, some of the best milk will be held back till the next milking, when it will have become the poor, blue milk that is first drawn. A double loss ensues from every such occurrence, because leaving milk in a cow's bag always tends to diminish secretion.

The method of milking and of treating the cows should be in accordance with the foregoing facts. They should be kept as quiet and comfortable and free from excitement as possible. To accomplish this regularity is of the first importance. The cows should come slowly and peaceably into the barn or yard, but promptly at a certain hour. Five in the morning and five at night are good hours. Some milk at five in the morning and seven at night, but it is not well to divide the time so unequally. Observations have shown that milkings 12 hours apart will give 30 lbs. of cheese to the cow, in a season, more than when they are 10 and 14 hours apart; and a greater inequality will make more difference still.

An hour is long enough to keep the herd confined, and milkers enough should be employed to complete the work in that time. This will require one hand to about 10 cows, and that number is about as many as one can safely milk at a time without danger of injury to the hands of the milker or to the cows. The number had better be less than more. Each milker should have certain cows to milk, and he should milk the same ones every time, and in the same order, so as to divide the time equally. Changing milkers attracts the attention of the cow and excites a little feeling of cautiousness, and she does not "give down" as perfectly as when always milked by the same person.

Each milker should have a good stool of his own, and when he sits down to milk should sit snug up to the cow. Getting off at arms' length not only makes awkward and hard work for the milker, but it exposes his every motion to the gaze of the cow, and keeps her attention aroused, and gives her the advantage of position if she should feel disposed to use it.

Pail room enough to hold the whole mess should always be within reach of the milker, for, toward the last end of the milking, he cannot get up and sit down again, and get all the milk. When once begun, a cow should not be left till she is finished. The pail being placed safely against catching dirt and spilling, let the work go on silently and as rapidly and quietly as possible, always using both hands. Milk the left hind teat with the right forward one, and the right

hind one with the left forward, changing teats often enough to relieve the pressure in the different parts of the udder about equally. Hold the left arm firmly toward the right leg of the cow so as to be able to press it back and protect the pail with the least disturbance, if she should kick or step forward.

The milker should be careful to avoid every occasion of discomfort to the cow. He should keep her teats sound and healthy by oiling them if they are inclined to chafe or crack. He should also be careful to take hold so as not to pinch a part of them between the ends of his fingers and his hand; and he should see that his finger-nails do not, like hawks' claws, do violence to the teats when pressing them. If any thing occurs to disturb the cow, or make her start or kick, treat her kindly and soothe her with caressing tones, and abate the disturbance as much as possible. Use no harsh language or violence. All severity is sure to make a cow keep back all the milk she can. It not only fails to effect any improvement in the habits of the animal, but does positive injury, and makes matters worse by cultivating a fractious disposition in both cow and milker. The man who cannot govern his temper had better let milking alone.

If a cow kicks or is uneasy it must not be inferred that she is malicious. It is very likely because she is hurt, or in some way made uncomfortable, and the cause of discomfort should be found and removed. When milking is comfortably and properly performed the cow evidently enjoys the operation. She manifests her pleasure by her quietness and a placid demeanor, and often by putting herself in a way to be milked, and showing impatience if it is not done when she expects it. Kindness is by far the best agent for regulating the habits of the dairy. All unusual noises and loud talking and singing should be avoided because they excite the attention and prevent relaxation in their udders. A strange dog passing through the yard or farm, has made many a cow hold back a pint of her best milk. Whistling, or low singing, may have no particular effect upon the cows, but they had better be omitted because they retard work. The singing milker is very sure to be behind hand. A slow, quarrelsome, or noisy milker, will waste more than his wages, and had better be kept away from the cows.

When a cow is nearly milked, the hand, as it grasps the teat, should reach up a little above the teat, so as to press the milk down through the valve or contraction at the upper end of it, and every time the milk is pressed out of the teat, the milker should pull down on it, not with a jerk, but gently. When the milk is nearly exhausted from the udder, this pulling down on the teat pulls open the contractions at the junctions of the tubes, and lets the milk run down, and is necessary to procure all the milk.

The omission of this operation, leaves a part of the milk in the tubes, and is what has made every milking machine a failure.

Condensed Milk.

An article in a recent number of "Nature" calls attention to the advantages of condensed milk as an article of diet particularly adapted for invalids and children. It is unnecessary to speak of the great importance of an abundance of pure unadulterated milk. Its value as an article of food for children depends upon the fact that it closely resembles the nourishment which nature has provided for them. Cow's milk merely differs from human milk in containing less sugar and less water, and hence it is usual to add to the milk given to infants a little sugar and water in order to make it as nearly identical with their natural food as possible.

Milk, however, is very liable to decomposition, particularly in hot weather, and the writer above quoted, thinks that much of the diarrhoea so common among children during the summer months is due to

the acidity of the milk that is given to them. The shaking that the milk undergoes which is brought by rail into cities no doubt accelerates this deleterious change in the milk. The adulteration of milk is a hackneyed subject of complaint, and is too frequently well grounded. It is not often that any injurious substance is added to the milk, but the addition of even so harmless an adulteration as pure well water diminishes the nutritive properties of the milk in exact proportion to the quantity added, and when we reflect that the most important use of milk is as an article of diet for those who stand most in need of nourishment—children and invalids—we see at once that this is a matter of grave importance.

All these disadvantages are obviated by the use of the condensed milk. It is portable and will keep for any length of time without decomposition, and it is prepared with a care and a scrupulous attention to cleanliness which warrants its purity. This care is essential to its manufacture, as the smallest particle of decomposing milk would ruin the whole mass.

Thousands of gallons are, according to the writer, used daily in Great Britain, and it is manufactured on a very large scale at Aylesbury, 200 persons being employed, and the milk of 1200 cows used every day. The process consists in driving off the water which the milk naturally contains, until it has reached the consistence of a syrup. Sugar is added to prevent decomposition, and the milk run into cans which are then hermetically sealed.

By the addition of water to this condensed milk, an article can be produced at pleasure which has all the appearance, flavor and properties of fresh milk with the addition of a little sugar. For children this is rather an advantage than otherwise, and for many other purposes it is no drawback. Of the palatableness and wholesomeness of the condensed milk when taken like cream, with tea and coffee, we can speak from personal experience during a considerable time. We commend the subject to the consideration of our readers.

Cheese is popularly supposed to be conspiring in its effects. This is true as regards green cheese, and untrue if the cheese has been allowed to ripen. If it is kept until it softens down, somewhat like butter, it is then ripe, and as easily digested as tender beef.

BEETS ON A DAIRY FARM.—Mr Harris Lewis, near Little Falls, N. Y. states that the cost of raising beets on his farm last season—including cost of all labor, cost of seed, &c. as \$16 50 per acre. The yield was 900 bushels, bringing the cost per bushel to about 5½ cents. Two cents per bushel should be added if the cost of the manure is taken into account.

FEED FOR PRODUCING MILK. The *Practical Farmer* says: "It is well settled in the opinion of all our best dairymen, that bran greatly promotes the milk secretions in cows, and is fed almost universally. About equally mixed with corn meal is the usual proportions. This mixture seems to promote both quantity and quality of milk."

For many years butter has been sent from Copenhagen to Europe in hermetically sealed tin cans. Although the business was commenced originally as an experiment, it has expanded to such a degree that, during the last two years, it has occupied several of the largest butter dealers of Copenhagen. The object of packing the butter in this manner is to protect it against the action of air and heat, and this is so completely attained that butter has been sent from Copenhagen to China and back again, without the smallest detriment to its edible qualities. The principal places of demand are China, Brazil, Java, Spain and other countries, generally through London or Liverpool houses. The packages vary in size up to twenty-eight pounds, although those of four pounds are generally preferred. The cans are lined inside with wood, saturated with salt pickle, and when filled, are soldered up. This treatment is enough to exert a very important influence in the preservation of the butter.—*Ex.*

A farmer can do more work with a good thinking apparatus than with the best span of horses ever hitched to a wagon.

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The Canada Farmer.

TORONTO, CANADA, JULY 15, 1873.

The Weather and Crops.

From the general tenor of the reports given by our exchanges in various parts of the country, we are warranted in believing that the anticipations of a bountiful harvest to which expression was given in our issue of May 31st, are destined to be fully realized. In some localities, drought prevailed to a rather alarming extent early in the season, but timely and copious rains dispelled the gloomy apprehensions that had been excited. Even the hay crop which threatened, in many sections to be short, will we believe, be quite up to the average everywhere, and in some favored neighborhoods, more than usually heavy. The fall wheat, though in many instances, badly water-killed, is likely to be on the whole, a fair crop. Spring grain promises remarkably well. Potatoes, though passing through a severe ordeal in western and middle Ontario, owing to the ravages of the Colorado bug, will not materially suffer as to yield of tubers, the vines being uncommonly luxuriant, so much so, that a portion of them can be spared for the marauder. Turnips were badly hurt by the fly at first, necessitating, in some cases, a fresh plant, and in more a diligent filling up of gaps, but the weather has been favorable, and we do not doubt that when pulling time comes, there will be a good supply to gather in. An abundant fruit yield may now be considered certain. The small early fruits have produced well, strawberries being diminished somewhat in productiveness by dry weather, but cherries, currants, gooseberries, and raspberries were perhaps never better both in quantity and quality. Apples will be plentiful. Pears, and plums, bid fair to be at least a medium crop. The honey harvest is a good one, but the honey gatherers, owing to the great mortality among bees last winter, are not so numerous as usual, and therefore this product will hardly be in the market very abundantly.

As to crop prospects elsewhere, we believe, they are very similar to our own throughout the Northern States. As to the South, we have seen only an occasional local report, which has been, however, encouraging. The *Quebec Chronicle* predicts a deficient harvest for the lower provinces, a prediction which the *St. John's Telegraph* endorses. A very competent judge says of crop prospects abroad:—The crop pro-

pects in parts of Europe are unsatisfactory. In Great Britain it is thought that wet and cold weather will reduce the crops below the average of last year. In France the area devoted to winter wheat was so reduced that spring wheat has been sown more extensively than common, and on high dry land it looks well. The rye crop is poor. In Germany the season is backward. In Austria accounts are favorable for all grain except barley. In Holland and Belgium prospects are unfavorable, and in Italy average crops are not expected. From Russia the reports are flattering, especially, in regard to wheat.

Beet-Root Sugar.

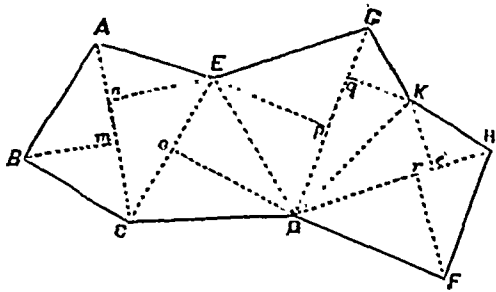
We have been much gratified by receiving from a correspondent and subscriber to the CANADA FARMER a most excellent sample of beet-root sugar, made by himself entirely, according to the directions which have from time to time been given in this journal. The sugar is equal to the best muscovado in appearance, is of a very light color, good grain, and dry. It has a very slight beety flavor, just enough to show its origin, but not enough to render it objectionable, disagreeable, or unfit for all the ordinary purposes for which muscovado sugar is used. In fact, the beety flavor is a very much slighter impurity than the prevailing flavor in many samples of French and German beet sugar which have been sent out to Canada as samples of what beet sugar should be, and the sample of sugar in question is far better and more usable than most maple sugars. This proves beyond cavil that the instructions given in the CANADA FARMER for the manufacture of beet sugar, if carefully carried out, are sufficient to enable us to manufacture the great staple which we now introduce in such large quantities from abroad, and to give our farmers the benefit of all the money which is now paid to the European producer of the beet.

The gentleman alluded to has got up a company to erect a small manufactory for beet sugar. He has interested a number of farmers in his neighborhood in the matter, and has got quite a large quantity of beets sown. He gives all who choose to grow beets an interest in the company, and takes payment of their stock in it in roots, to be supplied by them. In this manner many farmers have been induced to contribute and take stock who would not otherwise do so, and he allows any to become stock-holders down to growers of half an acre of the roots. He has simplified the machinery to be used as much as possible, and there can be no doubt he will be thoroughly successful. His example well merits attention, and we shall hope to see it followed by numerous parties in different portions of the Dominion.

Land and other Measurements.—Continued.

We proceed in this number to the consideration of more than four-sided figures; in other words polygons.

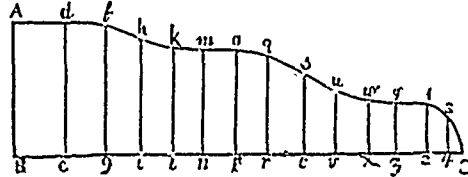
It often happens that a field, yard, &c., is bounded by more than four sides, as in the accompanying cut, which shows a figure of 8 different boundaries.



Well, a few minutes' reflections on the rules laid down in our last number, will enable any one to make the calculation in a very short time. For instance, in the figure given *A B C D E F G H K*, by joining *E C*, you see we have a trapezium, the diagonal *A C*, of which multiplied by half the sum of its two perpendiculars *m B*, and *n E*, (found of

course by the quadrant), will give the area in yards, perches, &c., as the case may be, and these reduced by the proper divisor will give the result in acres: again, by joining *ED*, we have the triangle *ECD*, the base of which *EC*, multiplied by half the perpendicular *D o*, will give its area. In a similar manner we can divide the remaining portion of the figure into two other trapeziums by joining *K D*,—each of which may be calculated as in the case of the first; then, the sum of all these areas will be the area of the whole field. The simpler method is to take the total area in yards before using the divisor 4,840—as then one division answers for more.

It frequently occurs also that one or more sides of a field may be bounded by a crooked fence, a winding stream, or something of that sort, that is, it may not be enclosed by straight lines, as in this cut.



In such a case, several measurements are taken at equal distances from one another, and perpendicularly to a base-line *BC*,—as for instance, the measurements *A B*, *c d*, *f g*, &c., in the figure—(the more numerous these measurements, the more exact will be the area)—next we add the two *AB* and *z H*, together, and take half the sum for an average between these two. To this average add the sum of all the other measurements and divide the result by the total number of measurements less one. Multiply this result by the length of your base-line, and the product will be the area.

Again, to measure a circular field or fishpond, take the length of the diameter: multiply this by $3\frac{1}{2}$, and you will have the circumference; then, multiply half the circumference by half the diameter, and the product will be the area. By the way, it is often interesting to compute from some of these simple rules, how much land is lost to farmers in this country from the use of the common zigzag fence. The side fence of a square ten acre field is 220 yards in length; now, for every zag in that fence there is a small triangle of land absolutely lost. Let us compute it. A rail is usually about 14 feet long; allow 2 feet for end-crossings and we have left 12 feet clear; thus, then, would be the length of each side of our triangle. Assume now that the length of our base-line, that is, the distance between the two most distant ends of two contiguous rails, is 18 feet, and the perpendicular from this line to the point of contiguity, say $4\frac{1}{2}$ feet, we have thus for each fence zag $18 \times 4\frac{1}{2}$ equal to 81, and the half of this, $40\frac{1}{2}$ square feet or $4\frac{1}{2}$ square yards loss. Now there are over 36 such base-lines in each side fence; consequently there is a loss for each side of 36 times $4\frac{1}{2}$, that is 162 yards, or 648 yards around the entire field. This calculation refers however to one side of the fence, and we must just double it to find the loss occasioned by the corresponding zags on the other side. That will give us 1,296—say 1,300 yards, or over a quarter of an acre in every 10 acres.

Bogus Butter.

Everybody is well aware that there is any amount of abominable grease in the market, which goes under the too complimentary name of butter. It is generally supposed, however, that all this wretched stuff is a veritable dairy product, and may be traced in its origin to the milk-pail. But this is an age of adulteration and counterfeiting, so that one need not, perhaps, be much astonished at the following paragraph, which we clip from a journal of unquestioned truth-worthiness as to dairy matters, the *Utica Herald*:—

“There are many vile compounds sold for butter. A cotemporary notices a New York enterprise by

which good (?) butter is prepared as follows: ‘Agents are employed to visit slaughter-houses and buy up all the beef suet. This is carted to the factory and cleaned. Then it is put into meat-choppers and minced fine. It is afterward placed in a boiler with as much water in bulk as itself. A steam pipe is introduced among the particles of suet, and they are melted. The refuse of membrane goes to the bottom of the water, the oily substance floats and is removed. This consists of butter matter and stearine. A temperature of eighty degrees melts the former and leaves the stearine at the bottom. The butter matter, or cream, is drawn off; about thirteen per cent. of fresh milk is added and the necessary salt, and the whole is churned for ten or fifteen minutes. The result is Orange county butter at about one-half the usual cost. The stearine is sold at twelve cents a pound to the candle maker, and the refuse at seven cents a pound to the manufacturer of food for cattle. A company with a capital of \$500,000 has been organized for the manufacture, and they expect to make dividends of 100 per cent. The inventor is spoken of as a chemist, but is not named.’ He had never ought to be, except with execration.”

What Makes Farming Unprofitable.

Joseph Harris, of Rochester, has been discussing the above question in the *American Agriculturist*. He says:

“There are two main reasons why we are not making money. First, the extreme fluctuation in prices: and second, the low average crops per acre. There is no remedy for the fluctuation in prices. It depends on causes beyond the control of an individual farmer. It is not caused to any great extent by ‘middlemen,’ or speculators, or railroad monopolies. It depends on the great law of supply and demand. All that these men can do is to aggravate the evil. By refusing to buy when the supply is large they may depress prices to a point far below the cost of production; and by refusing to sell when there is a scarcity they may force an article up to an exorbitant rate. But this is all that they can do. Instead of wasting our energies in trying to remedy this evil, it is better to accept the fact that it has always existed and always will exist, and act accordingly. The real remedy is for a farmer to adopt a fixed and definite system of management, and stick to it.”

There is much good sound sense in these views, and we especially desire to call attention to the necessity which exists for rigorously dealing with the only one of the reasons above-stated, which the individual farmer can control. “Low average crops per acre,” result from poor farming, and therefore this evil admits of remedy. The universal resolve to farm better, to till a smaller quantity of land, if need be, and do it thoroughly,—would work a great and pleasing change in the agriculture of this continent. As Mr. Harris well urges, a system of management should be adopted wisely, and adhered to perseveringly. It is hardly possible for this course to be pursued without its proving remunerative and satisfactory in the long run.

British Agricultural Exhibitions.

Concerning these, *The Farmer* of June 30th, says: ‘The show season is now in what may be called “full swing.” There have been no fewer than seven exhibitions of as many important provincial societies during the month, viz. The Bath and West of England, which was held at Plymouth; the Essex Society, at Maldon; the Suffolk Society, at Woodbridge; the Norfolk Society, at Thetford; the Warwickshire Society, at Birmingham; the Hants and Berks Society, at Southampton; and the Cambridge Society, at Chatteris. The weather has greatly favored the majority of these shows, that at Plymouth being the most successful yet held by the Bath and West of England Society. The programme for next month is even more formidable, as it includes the Royal, the Highland, and many other northern and southern societies. There have been no stock sales of any importance.’

More attention should be paid to breeding and raising better stock. Breeding from scrubs and other common blood is suicidal shortsightedness. It is a “penny wise and a pound foolish” practice to use feeble and worthless yearling bulls, when for \$100 to \$500 a neighborhood may be supplied with the best blood.—*Ed.*

Correspondence.

Entomological Queries and Replies.

Grasshoppers and Cabbages.

T. A. Postage du Port, desires to know whether there is anything that will prevent grasshoppers from eating cabbage, and whether watering with coal oil will make the vegetable taste. Grasshoppers are such voracious creatures and so active in their habits, that it is no easy matter to keep them away from one's plants, the only effective remedy for them that we know of is the common barn-door fowl and the domestic turkey. Both of these creatures will eat any number of grasshoppers and thrive upon them, when the insects are very abundant, a few hawks may be allowed to run in the garden with great advantage. There is a drawback, however, in their partiality to tomatoes and some other vegetables; but we must oftentimes take a choice of evils. We cannot at all recommend the use of coal oil in this case. We do not think that it would be an effective protection from the destruction of the insects, except when freely applied, and an emulsion very much diluted with water, and used extremely sparingly, it is most injurious to vegetable life, its application would probably destroy more cabbages than the pestilent grasshoppers.

Clothes Moths.

B. J., of Lincoln, enquires what is the best means of preventing moths from getting into cloth, and when the fabric is already infested, what will destroy them. As our correspondent is no doubt aware, the "moth," as it is termed, that effects woollen fabrics and furs is the caterpillar of a tiny moth. It lives in a curious case that it constructs out of the material on which it feeds, and usually only shows its head outside of this singular habitation. When it moves about it cuts away the material before it with its scissor-like jaws, in order to clear a road for its case dragging behind, and thus does a great deal of damage. The amount it actually eats is inconsiderable when compared with what it destroys.

There are a large number of methods made use of for protection against this insect. One of great value is to carefully dust, shake, and beat all woollen articles at the commencement of summer, and if not required for use during the warm weather, to pack them away in drawers or boxes, carefully enclosing them first in linen or paper bags. If the articles cannot be put away, repeated flakings and dustings will prevent any lodgment of the enemy. Care and cleanliness are the best protectors. In the case of carpets and furniture, the annual domestic nuisance of house-keeping is no doubt of very great value. When a house has become infested by them, it may become necessary to resort to some further expedients, such as strewn pepper around the edges of carpets and in the crevices of cloth-covered furniture; applying powdered camphor or snuff in the same manner; or what is strongly recommended by some in place of the foregoing disagreeable substances—sprinkling powdered alum or strong alum water over the articles liable to be affected.

If cloth is already affected, the worms may be got rid of by sponging the fabric over with benzine and hanging it in the air to dry, care must of course be taken not to use the benzine near a light or fire. Diluted carbolic acid might also be used where there is no danger of its injuring the fabric. The cloth lining of carriages may be effectually preserved from the moth by sponging both sides with a solution of corrosive sublimate (a deadly poison) in alcohol made just strong enough not to leave a white mark on a black feather.

"Bill," said Bob, "why is that tree called a weeping willow?" "Cause one of the sneaky, plaguey things grew near our schoolhouse, and supplied our master with switches.

Veterinary Department.

Sunstroke in Horses.

During the hot months of summer, horses that are severely worked and exposed occasionally, succumb to the extreme heat, and become utterly prostrated. The alarming symptoms are suddenly developed, but in general there are certain premonitory symptoms shown for a day or two, as dulness, loss of appetite, a peculiar dryness of the skin, and although the horse is severely wrought, he does not perspire as usual. A still closer examination will detect a slow, weak pulse and hot mouth. The general symptoms are impaired voluntary motions, the animal reels and staggers, the breathing is stertorous, the surface of the body cold, he falls down and is unable to rise, in some cases lying apparently insensible, whilst in others he appears to experience considerable pain. In cases that terminate unfavorably, he will make frequent ineffectual attempts to rise, pawing with his fore feet, and knocking his head violently on the ground, the pulse becoming weaker and weaker.

Whenever a horse shows signs of being overcome with the heat, he should be immediately released from work and placed in a shade or in a cool box, his head should be bathed with cold water, and a stimulant should be administered without delay, such as sulphurous ether, nitrous ether, or some of the preparations of ammonia, well diluted with cold water. In cases where he loses complete power, great care is necessary in giving medicine, and it is generally advisable to apply to the body, blankets wrung out of warm water, and at the same time bathe the head with cold water, or apply pounded ice to the poll. Whenever the patient shows signs of returning power, indicated by the pulse becoming stronger, and by the animal lifting his head and beginning to notice what is going on around him; endeavors should then be made to get him on his feet. Give small quantities of cold water, and when he regains sufficient strength allow him a small bran mash. A horse that has suffered from an attack of sunstroke requires to be very carefully used for some time, until the system recovers from the severe shock to which it has been subjected.

Treatment for Sprains and Contracted Hoofs.

G. H. H., of Greenwood, Ontario, wishes to know "What is the best way of treating a horse that was sprained in the back sinews of the leg and the coffin-joint; also the best treatment for contracted hoofs."

Sprain of the back tendons of the leg is best treated by giving the animal perfect rest, and fomenting the limb with warm water three or four times a day, and continue the fomentations for several days; the limb should also be carefully bandaged with a flannel bandage, and when the pain is severe, equal parts of laudanum and tincture of arnica should be applied after each fomentation. In most cases it is desirable to remove the shoe, although there are exceptional cases where it is found beneficial to apply a shoe with moderately high heels, with the view of taking the strain off the injured tendons. When the heat and tenderness are removed, a blister should be applied, and in so doing, the hair must be cut off, and any blistering ointment may be used that does not contain any ingredient which is likely to cause a permanent blemish. After the blister has ceased to act and the swelling gradually disappears, bathe the parts daily with cold water.

In all severe sprains of the back tendons the patients must be very gently used, even after the irritation appears to be removed, as too much exercise or work is very apt to produce a permanent shortening of the limb.

Contracted Hoofs.

Contraction of the foot proceeds from a great many different causes, as navicular disease, laminitis, injuries, etc. It is a sequel of other diseases rather than a disease of itself, and therefore, we cannot prescribe with any degree of certainty without some knowledge of the exciting cause.

Apiary Department.

Bee Houses.

Among the most unsightly objects that afflicts the eye as one travels here and there throughout the country, are the structures put up to shelter beehives from sun and storm. They are generally mere sheds of the most rickety and tumble-down description. Put up in a hurry—not intended to remain long—soon getting out of shape and out of repair, they are as we have said, among the worst of eyesores. Generally speaking, too, they are very unhandy. Often to save trouble and boards they are put up in the form of a lean-to against one side of the dwelling-house. They are built low, just sufficing to cover the hives. There is no getting behind the hives for the purpose of examination or management; and so every thing must be done in front, just in the thick of the thoroughfare where the bees are passing and re-passing on their trips for honey and pollen. There is no getting under the roof to do anything, and so whatever is done must be got along with in a fumbling, awkward sort of way, where the hives stand, or they must be removed to a distance for more convenient handling. Bee-keepers who have these low-roofed, inconvenient, unsightly looking bee-houses, are generally of the class who leave the bees very much to their own devices. They have the bees, put on honey-boxes in white clover time, take the boxes off in the fall, and perhaps pack some straw around the hives when winter comes on. These are about all the operations in practical apiculture with which they trouble themselves. Artificial swarming, regulating stocks, rearing queens, extracting honey, feeding for increase, and many other useful manipulations, known to intelligent and skillful bee-keepers, are wholly out of their line. As they have no occasion to meddle much with their bee-hives, it does not matter a great deal if they are awkwardly placed and inconveniently situated.

Now and then we find some enthusiastic amateur bee-keeper, who has a nice home in the suburbs of a town or city, going to the very opposite extreme and building a very tasteful and elaborate affair—a sort of palatial mansion for the honey gatherers. The English bee-books contain many pretty and even elegant designs for bee-houses, and some of the best among them have been reproduced west of the Atlantic.

Many who "have a notion of bee-keeping," as the common phrase is, imagine that a bee-house is the first thing to be thought of; and we have occasionally met with people quite resolved to try bee-keeping but they have no place for their hives to stand, and they cannot spare time to build one. We are often asked by those who think of embarking in apiculture, "What is the best style of bee-house to put up?"

Now the want of a bee-house need not deter any one from bee-keeping, and the best advice for such as propose building one, is that given by Douglas Jerrold about getting married: "Don't."

"Don't" build a bee-house for the following reasons:—

1. They harbor toads, mice, moths, and other insects.

2. They bundle the hives together so closely that various evils ensue. Young queens on returning from their "bridal tour" are apt to go into the wrong hive, and get killed. In case of a stock becoming excited from any cause, the adjacent hives are pretty sure to become excited also, until the entire apiary becomes infuriated and unmanageable. Robbing is more likely to take place when bees are crowded together. Just as families that live in close proximity to one another, naturally get to know each other's affairs more intimately than they would if at a greater distance apart, so when hives are put close together weakness is discovered, and advantage taken of it. Moreover, bees, like human beings, are less apt to quarrel if they live some little distance apart.

3. There is a more excellent way. A properly made bee-hive is a little house in itself, and is impervious to rain and storm. All that is needed is a partial shade to temper the too violent rays of the sun in the middle of the hot summer day. This can usually be got among the fruit trees of an orchard, or the shade trees of a lawn or shrubbery. One of the best bee-keepers we know practices and recom-

mends the planting of a grape-vine beside every beehive. This will furnish all the shade required. Care must be taken that the shading be not too dense. A position so chosen that the morning and evening sun will fall full on the hive, while the noon-day blaze is intercepted, exactly meets the case. In such a position the bees will begin work with the first gleam of sunshine, and continue it until the latest beam of the evening. While there will be no cessation of labor because of excessive noontide heat. Set well and widely apart. Each hive is a separate and independent community. With partial shade and a good exposure, the bees will do much better than when made tenants of a bee-house.

We have a bee-house. It was built in the days of our youth and inexperience as a bee-keeper. A pretty site was chosen for it, and it was made rather ornamental, with a nice little cupola on the top, and Venetian blinds at the sides for ventilation. It held two tiers of hives, each having an alighting-board and entrance-archway in front of it. We made a fair trial of it, and found it worse than useless. There are no colonies in it now. It has long since ceased to resound with the hum of "the little busy bee." But we find it very useful. It is a most convenient place for storing empty hives, honey boxes, spareframes, the extractor, and all the appurtenances of bee-keeping. Besides accommodating these, it affords room for the garden tools, and the lawn mower. Among other uses it provokes enquiry among visitors. As they note the hives here and there among the trees, and observe that there are none in the bee-house, they very naturally ask for the why and wherefore. Whereupon we discourse to them very much as we have now done to the readers of the CANADA FARMER in the foregoing article.

The Moth-Miller.

We regard the fear entertained of the moth-miller as mis-directed, and more imaginary than real. As long as a stock is strong and in good condition it is safe, but should it be suffered to decline from over-swarming, loss of queen, or other cause, the eggs of the miller are allowed to be hatched in the exposed combs; as the bees die off from natural causes the moth-worms increase, and, if not dislodged, gain entire possession. The female miller is much larger than the male, and resembles in color a sliver from a weather-beaten fence rail. During the day she may often be found sticking about the cover of the hive. Toward evening she will be flitting about the entrance and if the combs are not covered with bees, or cracks and crevices can be found, or litter is retained on the bottom board, she will be at no loss for a place to deposit her eggs within the hive. There can be no "moth-proof" hive; but if the entrance be on one side only, and the bottom board is inclined, the bees have all the protection against the intruders that a hive can afford. Moth-proof hives (so-called) are owned either by persons of little information, or sold to such by unprincipled vendors, as well-informed beekeepers know how to prevent the ravages of the moth, and also know that in warm weather more or less moth eggs are present in the combs. Hence, a real moth-proof hive must also exclude the bees. During the summer months, if a mixture of vinegar and water, well sweetened, be placed at night among the hives in white dishes, many millers will be drowned. Moth "traps" form the basis of a considerable trade. Some of these might be well enough if they were emptied, and the worms destroyed every week; but as they are usually neglected, they become "moth nurseries" instead of traps. Worms may be trapped early in the season by laying pieces of shingle or split elder, the hollowing side down, upon the bottom board. The worms will retreat under these to spin their cocoons, and must be destroyed once or twice a week, or they "take unto themselves wings and fly away." The moth is less troublesome in large apiaries. The sprightly little wren, if encouraged to build its nest near the hive, will destroy myriads of worms and insects. They are easily attracted by putting up boxes made three inches square, with an inch a-half hole for an entrance.—*Rural Sun, Nashville, Tenn.*

A CEMENT of great adhesive quality, particularly serviceable in attaching the brass mountings on glass lamps, as it is unaffected by petroleum, may be prepared by boiling three parts of resin with one part of caustic soda, and five parts of water, thus making a kind of soap which is mixed with one-half its weight of plaster of Paris. Zinc white, white lead, or precipitated chalk, may be used instead of the plaster, but when they are used the cement will be longer in hardening.

Breeder and Breeder.

Hogs' Intelligence.

Hogs often show great intelligence and aptitude to learn. A forester had a Chinese pig, which followed him like a dog, came at call, ran up and down stairs and from room to room. It learned to bow, and performed several tricks. It was very expert in hunting mushrooms; and, when told to keep watch, it would remain at its post until called away. When its owner said "I am going to kill you," it would lie down on its back and stretch out its legs.

It is said that when Louis the XI was sick, every means was taken to divert the sadness of his mind, but, do what they would, he could not be made to laugh; at length a nobleman thought of teaching a pig to dance, and bring it before his majesty. It was not long before a pig could hop about very well to the sound of a bagpipe, they then dressed it with coat and breeches, and a sword &c.; in short all that the court gentlemen of the time were accustomed to wear, and introduced it into the presence of the king. The animal bowed, danced, and followed all orders in the most dexterous manner, until, getting tired, it became so awkward that the king roared with laughter, to the delight of his courtiers.

An English gentleman carefully trained a hog for hunting. "Slug," for so the hog was called, was very fond of the chase, and was even on the alert when the huntsmen were preparing to start; but the dogs could not endure its company and their owner was never able to make use of both at the same time. "Slug" could scent a bird from a great distance, and would dig in the earth to show where it had been. When the bird hopped, it followed like a dog.

Hogs have been trained for draught. A countryman who was in the habit of going to St. Alban's market in a small cart drawn by four hogs; another countryman won a wager that his hog would carry him on his back four miles in one hour. These facts are cited to show that the hog is a more intelligent animal than we give him credit for. However every kind-hearted person will disapprove of teaching dumb creatures to perform tricks. For our own part, we take no pleasure in seeing dancing bears and spelling pigs; for the process of training draws so deeply on our sympathy that we look upon every thing of the kind as the torturing of animals.—*Our Dumb Animals.*

New Way of Teaching Calves to Drink.

A correspondent of the *Maryland Farmer* says: Never let your calves suck the cows, but as soon as they are born, take them from their mothers and put them in some house or shed to themselves. Have a trough made with a scooped out bottom, so they can obtain the last drop of milk, and at intervals of one foot, tuck the fingers of an old buckskin glove; pour into this trough milk obtained from the dairy after being skimmed (at first it must be sweet and warmed a little, but they soon become fond even of sour milk mixed with a little bran); lead up the calves, and for two or three feedings insert the glove fingers in their mouths; afterwards they will come of their own free will, and all trouble ceases. The trough should be kept covered when not in use. By adopting this plan, you have the benefit of all the milk; you get rid of the disagreeable bellowing of the cows when the calves are weaned; your cows do not slacken or refuse to give down their milk, as they sometimes do, when the calves are allowed to run with them a month or six weeks, and are then taken away; and in two weeks the cows and calves can be turned in the same pasture without noticing each other in the usual way.

Proper Feeding.

The proper feeding of horses has much to do with their condition, and likewise with their remaining sound. Food should be proportioned to work, and it should also be of the best quality. Hay that has been much heated in the stack is above all things to be avoided, as, from its powerful diuretic properties, it debilitates and creates thirst; and mow-burnt or heated oats are equally productive of mischief. Hay which is produced on dry upland ground is best. Indeed, we are far from thinking that rich meadow hay, finely scented as it is, and apparently so full of nourishment, is fitted for any description of horse that is required to go fast, and we are quite certain that thousands of horses are destroyed annually by the effects of hay and water. The latter cannot be too soft, and when not so, it should be given with a small portion of bran in it.—*Prairie Farmer.*

Scab in Sheep.

Mr. Henry Woods, steward and chief manager of the late Lord Walsingham, owner of one of the largest and choicest Southdown flocks in England, recommends for sheep suffering with scab, soft-soap, one and a quarter pounds; shag tobacco, one pound; spirits of turpentine, one pint; spirits of tar, one-half pint; white arsenic three ounces. This to be safe and effectual must be boiled so as thoroughly to dissolve the arsenic, and that he regards as an important point. Better put the tobacco when boiled into a flannel bag, and squeeze it sufficiently to get out all the strength, in order to get the full benefit of it. Then add water enough to make four quarts of the wash for each sheep.

It is not a dip, but a wash, and to put it on, an old tea-pot or a spouted tin should be used. The way to make it most effectual is to open the wool by making three marks on each side of the sheep, also one down the shoulder, one on each side of the neck, one down the breast, and one down each thigh, and into the marks pour the liquid. In this as in many other things, it is worth doing at all it is worth doing well, and so don't be in a hurry about it.

Do the work well. Rub the liquid well into the skin. After passing it along the grooves work it well in with the hand. Be in no hurry about it as if you wanted to get over it as quickly as possible. The liquid will work a cure. There may be some spots where the liquid has not penetrated.

Examine the sheep every two or three days for three weeks, by which time the disease may be expected to be eradicated. If there are any white spots, rub on some of the following ointment: mercury, four ounces; Venice turpentine, three ounces; spirits of turpentine, one ounce. Let them be worked up and thoroughly mixed together, then add about one and a quarter pounds of lard melted over a slow fire, stirring while melting. When taken off, continue to stir till cold, so as to mix the mercury well.—*Western Farmer.*

Plank Floors Ruinous to Horses.

Can't some genius invent a kind of table for that can be kept clean without too much labor, and will not ruin the feet of horses standing upon them? If not, every horse-owner whose horse, or horses, are obliged to stand still much of the time, had better have a yard convenient to the stable into which the horses can run when neither at work, nor eating, nor sleeping.

We have had some experience in this line. Our horses have not much to do in the winter season, and we have noticed a tendency in them to become lame, but as they get over it upon driving, we paid but little attention to the matter. The past winter we have kept but one horse, and as a public conveyance ran between our place and office, we have preferred to patronize that, and let our horse stand in the stable. After the sleighing disappeared and the roads became bad he had but little exercise, and we noticed that he was becoming lame. Supposing that he would improve as soon as spring work commenced, we paid but little attention to it, until he became so lame that he could not strike a trot, and his limbs seemed weak and tender, although we could find no sore or tender spot, nor were his limbs swollen. We consulted a veterinary surgeon, who could neither find cause for his lameness, nor prescribe a remedy.

We determined to try an experiment. We made a fence enclosing a small plot of grass, and turned him out, cutting grass for him. Now for the results. For three or four weeks before turning him out he had been getting lammer and lammer, until he became unable to trot. In one week from the time we turned him out he could trot off quite lively, and now he has nearly recovered. He seemed to be lame in every foot, and especially in his hind feet, and we have no doubt that standing idle on a plank floor caused his hoofs to become dry, hard and contracted, so that they pressed upon the tender frog. We have here suggested one remedy for hard floors, namely, a yard; if any of our readers know of a substitute for plank floors, that will obviate the difficulties we have presented, we should be glad to hear from them.—*The American Rural Home.*

CURE FOR STRETCHES IN SHEEP.—A correspondent gives the following as an infallible cure for the disease called stretches, which is caused by costiveness brought on by the long use of dry food and the want of salt:—To one pint of milk add five or six tablespoonfuls of ashes; set over the fire and gently warm. Dose—four to six tablespoonfuls once in half an hour, until you hear a rumbling or looseness in the bowels. As soon as the costiveness is removed the sheep will recover gradually, but a change of food will be necessary.—*Western Rural.*

Poisoning of Sheep by Dipping.

In our issue of May 15th, we published an illustrated article in reference to the best mode of dipping sheep. *The Farmer* of June 30th, contains a very sensible article on this subject, pointing out the dangers to be guarded against in the process, and on the whole, gives the preference to *pouring* instead of *dipping*. It is as follows:—At each season comes round, and the operation of sheep dipping is necessarily put into practice, we are apprised of deaths taking place, in some instances few, but unhappily in far too many, great numbers being carried off. Although the season is not far advanced, the unwelcome news reaches us from various quarters, and but a few days ago in the county of Hertford, on the borders of Essex, no less than forty, being two-thirds of a lot just purchased for store purposes, succumbed within a few hours after the operation.

With large, fat, and heavy sheep there is always a great liability to accident, and particularly among ewes that are pregnant. The necessary handling induces a great amount of excitement, and pressure on the lungs becomes so great that suffocation, when the creature is turned on the back, is very easily produced. To obviate this, we do not see why sheep of all kinds, when they need dipping, cannot be immersed in the bath feet downwards. A thoroughly practical and scientific veterinarian, Mr. Dickinson, of Boston, Lincolnshire, whose assistance passes through the bath many thousands annually, has for some years adopted this plan. The sheep is placed in a suitable cage, and by a simple lever raised and lowered in the bath, and this means entirely obviates casualties we have mentioned.

But there are other causes for mortality and destruction of sheep in dipping besides suffocation in handling, and the most common and fatal is the use of metallic preparations for the cure of scab, and killing the parasites that abound in the fleeces. Arsenic and corrosive sublimate are substances which enter largely into the composition of these killing mixtures, and we learn that a well-known, largely advertised nostrum, which is principally composed of arsenic, was used on the occasion named in the commencement of this article, by which forty animals were rendered lifeless in somewhat less than four hours.

Popular prejudice, fostered by emblazoned show cards and hand bills, announces that no other remedy can be used which will destroy the parasites of the fleece; but here prejudice makes a great mistake. Sheep-dipping, like many other operations, is too carelessly and too seldom done, and, as a result, the dipper resorts to a most deadly remedy, which not only kills the parasites, but also the sheep, and thus adds to the annual mortality which we have too much reason to deplore as already too great, and more than we can afford. Besides this, sheep-farmers are frequently at fault in turning newly dipped sheep back to the same pastures and localities which abound in the parasites which torment them, and newly-clipped sheep are allowed to mingle with lambs without any precaution being taken to guard against the passage of the lice, ticks, &c., from one to the other. Thus, the operation confined to ewes only is but a proceeding which favors the parasites seeking greater warmth in the thicker and closer fleece of the lambs. When ewes are dipped, it would be well to dip lambs also, and in using a compound, that selected should be one not essentially for bleaching and cleaning the wool, but for its power of attaching itself to the fibres of the fleece, and thus render it untenable by the parasite. There is, however, some difficulty in the choice of materials which will effect this, and more so when the bath is used, as all substances cannot be conveyed in a watery solution. For this reason we advocate the more effective, although slower plan of *pouring*, with which every sheep farmer is thoroughly conversant. By this, many agents, perfectly harmless to the sheep, but deadly poisonous to the parasites, may be used, conveying comfort to the animals, effecting a more speedy cure, and preventing not only the loss of flesh, which is never regained, but also the loss of animals themselves. Among the few relics of agricultural barbarities, in which still remain dangerous remedies as sheep-dips, are those which ere long must disappear, and safety will be as certain in this as any other operation which is resorted to for the production and conservation of stock, that forms the staple food of a large and growing country like ours.

The Draft-Horse.

The proper places for this horse are the drays and heavy waggon and carts of cities, the heaviest kind of farm work, and all draft where the walk is the only gait required. The points of this kind of horse are, in some respects, opposite to those of horses required for quicker motion. It is a principle in mechanics that speed and power are opposed to each other, and the rule is applicable to the animal as well as to other machines.

The leading characteristic of the draft-horse being strength, his legs should be short and his body large and muscular in proportion to his weight. A very wide breast and wide base to the chest (sternum), which in the trotter would be a defect, because it would occasion a wavering motion of the gut, and a loss of time in preserving the balance of the body, would be a merit in the draft-horse, as it would give greater weight nearer the ground, and brace the animal more against the jabs and strains he must meet with in labor.

A sloping shoulder is indispensable in the trotter, whereas an upright shoulder and comparatively low fore-end, are most favorable to the weight of the animal being thrown into the collar. Still, as the low and upright shoulder are unfavorable to the reach and speedy and easy action of the foreleg, the point must not be carried to an extreme, lest the animal be deficient in speed in walking. It may be better to lose some power at a dead pull, if by so doing we obtain points which insure greater expedition in the performance of ordinary labor,—a matter which will be further noticed in speaking of breeds of the draft-horse.

The leading breeds of British draft-horses are the old black cart breed, which from the earliest times has occupied the rich lands of Lincolnshire and other sections, the Suffolk, and the Clydesdale. The former breed is of immense size,—sometimes reaching the weight of 2,400 pounds,—and furnishes the elephantine animals used in the drays and beer-waggon of the metropolis. For agricultural purposes, an animal of less size and quicker motion is generally preferred, and the Suffolk and Clydesdale are the favorites. Not having an opportunity of making a thorough comparison of these breeds, I would not venture a decided opinion as to their relative merits.

I met with the Suffolks chiefly at the shows of the Royal Agricultural, and the shows of other societies, and saw selected specimens on various farms; therefore, I can hardly judge of the average character of the breed. They are mostly of a sorrel or light chestnut color, sometimes with mane and tail lighter than the body; about sixteen hands high, generally very thick set, which formerly occasioned the name of *Punch*, or *Suffolk Punch* to be applied to them. They were formerly very low and thick in the shoulder, and possessed wonderful power at a dead pull; but they have been bred, latterly, with a higher forehead and more obliquity of shoulder,—points which have given them more activity. They seem to be generally good walkers, have pleasant, tractable tempers, and are not deficient in muscular strength.

Of the Clydesdale I saw more. They take their name from the vale of the Clyde, but are bred extensively in several of the western counties of Scotland, and more or less in other sections of that country. I saw many of them in the principal breeding districts, at market fairs, and at agricultural shows,—about two hundred of them at that of the Highland Society, and nearly as great a number at some local shows. Their color is chiefly bay and black, the former rather predominating. Their height may be put at sixteen hands, but in general they have less weight in proportion to their height than the English breeds before mentioned. Their weight ranges from 1,700 to upwards of 2,000 pounds. Many of them are very symmetrical,—are higher in the withers, and particularly more oblique in the shoulder, than the English, and walk with ease and rapidity,—equalling in their gait, any horses I have ever seen. They seem to be generally of good texture; are firm in muscle, sinewy, and wiry, with short and wide shanks. They have good constitutions, and are cheaply kept. They are seldom driven out of a walk. It is the custom of Scottish farmers to keep lighter kinds of horses for quick driving on the road.

The draft-horses of our country were brought here to a great extent, by immigrants from Germany. Many of the heavy horses used in our city are descendants of these, bred in Pennsylvania and other sections where the stock has been disseminated. They have not generally the strength of limb and firmness of texture which we see in the Suffolks and Clydesdales, and I have no hesitation in saying that wherever horses of this description are bred, a cross with the latter, or an entire substitution of them for the so-called Dutch stock, would be a decided improve-

ment. In some of our cities the supply of draft horses has been of late obtained in part from Canada West, where, as before remarked, a cross of the Clydesdale prevails to some extent.—*Late Mr. Sandfort Howard, in Western Farmer.*

Exportation of Live Stock to Australia.

Nearly every vessel that has left this country for Australia, since the order published in April, has taken out cattle or sheep of some kind or other—Short-horns, Devons, and Hertfords among cattle, and Lincolns, Leicesters, and Shropshires among sheep.

The Australian Agricultural Company gave the Duke of Devonshire one thousand guineas for *Duke of Oxford 24th*, a Short-horn roan yearling bull of the Oxford tribe. Messrs. Barnes & Smith, Dyrabba, bought *Duke of Oxford 25th*, also from Holker, at 500 gs. for Mr. J. Irving, of Richmond River, and for themselves Mr. Oliver's *Cherry Grand Duke 3rd*, and other Short-horns from Mr. Bolton, County of Wexford, Rev. T. Staniforth, Mr. Brassey, Preston Hall, and Mr. Smith, of Quinton, as well as two bulls from Lord Penrhyn. Major Fanning also purchased five bulls from Lord Penrhyn and two from Messrs. Lency's herds. Two cows were also sent by Mr. Bruce to Mr. Woodhouse, of New South Wales. Mr. A. Dangar, of Barooma, imported two cows of the Bates or Knightly strain: *Archduchess of Essex*, a roan five-year-old cow from Sir G. R. Philips' herd, and *Lady Walnut* from Mr. Savill's at Ingthorpe; whilst *Lady Ribkah*, bred by Mr. Torr, from the Sylph tribe, and *Rosa Seemul*, from Mr. J. J. Stone, went to Mr. Wm. Dangar, of Neotsfield, from Messrs. Sturgeon. Other Short-horns have gone to Melbourne. Mr. William McCulloch imported five. They consisted of the well-known prize bull *Rapid* and four heifers also of Booth blood. It is to be regretted that such valuable and good animals are leaving the country. *Wave Whirl*, a roan heifer from Mr. Torr's large herd at Aylesby, and *Pink 11th* and *16th*, the latter a prize winner as a calf at the Royal, at Cardiff, accompany them in the same vessel. Mr. J. Mickle has also imported some promising young bulls and a heifer. A large number of bulls and heifers have been consigned to Mr. Watt, of Melbourne, from different herds in the north of England.—*Bell's Weekly Messenger London, June 16th.*

SALE OF THOROUGHBRED COLTS.—At A. J. Alexander's sale, June 25, 38 yearlings—17 horse colts and 21 fillies—were sold for \$25,200 an average of about \$662 each. The highest price paid was \$5,500 for a colt sired by Lexington.

ILLINOIS SHORT-HORN SALES.—Mr. Thomas Smith, of Franklin Grove Ill., recently sold 22 females and 10 bulls, at an average of \$204 for the females and \$133 for the bulls. The animals were nearly all of light colors—16 being either white or light roan—and not of fashionable breeding. Most of the animals were sold to persons living near the place of sale.

TAILS—WHITE AND BLACK.—A correspondent of the *Country Gentleman* says: Every spotted dog has the end of his tail white, and every spotted cat the end of the tail black. Of the fact there can be no doubt. I have examined dogs and cats without number in France, in England, and America, and always noticed the same result. The dog affair is not original with me, but the cat is. Our former minister to Japan, Mr. Harris, first mentioned the fact concerning the dog in a letter to the *New York Times*, published some years since. I have looked at many paintings of dogs in the galleries of Paris, and elsewhere, in regard to this, and found even there the dogs spotted, always "in order," proving to me that the artists had invariably copied after nature.

SALE OF THE COBBHAM STUD YEARLINGS.—The result of the first sale of yearlings, on Saturday, showed an average of 383 guineas, and a fraction over for 34 lots; four colts and a filly realising over 1,000 guineas each. The five in question produced exactly 7,000 guineas, and all were the progeny of Blair Athol, except a colt by Victorious. Two other Blair Athol fillies realised 700 and 500 guineas each, and a couple of colts 820 guineas between them, which gives a total of 9,020 guineas for eight of that sire's stock. His colts out of Circe and Ellermire, and the sister to Devotion out of Alcestis, was bought for Australia by Mr. Dangar, a wealthy colonist, who meant having the brother to Coimbra; Captain Machell, however, staked off opposition, and this colt remains in England at 2,000 guineas.—*Mark Lane Express.*

Poultry Yard.

The Domestic Turkey.

Of the origin of the domestic turkey there is but little known. Shortly after its introduction into Europe, so greatly was it esteemed, that in the year 1566, a present of twelve turkeys was not thought unworthy of being offered by the municipality of Amiens to their King, at whose marriage, in 1570, they were first eaten in France. A German writer states they were first introduced into Germany in 1530; and a sumptuary law, made at Venice in 1577, particularizes the tables at which they were permitted to be used. They were, it is further stated, first introduced from Spain into England as early as 1525, and were in a short time spread over the kingdom, and increased to that degree that in 1555 they could already furnish a dish at country feasts. They have since been domesticated throughout the civilized world, in every climate, although said not to succeed equally on the barren sands of Africa.

The turkey is in all respects an out-of-door bird, and in this respect retains, even in its domesticated state, that love of freedom which characterizes its wild progenitor. Turkeys have no fondness for a shed or shelter for a roosting-place; but in the coldest weather in winter, in the severest storms of rain or snow, they prefer the open air, and a lofty tree on which to take up lodgings for the night. Here perched head to the wind, they ride out the hardest gales in safety with apparent pleasure, and the instances are rare in which they are known to perish from cold or storm. But notwithstanding this natural fondness of out-of-door roosting, when taught to roost within a shed they usually resort to it during severe weather. When old hens shed their feathers late in the fall, as will sometimes be the case, it is well they should be housed during severe weather. As the snow melts away and patches of green grass are here and there disclosed to view, the turkeys no longer hang about the barn-yard, but spend their time in the orchard and on the sunny side of walls and buildings. The cock-turkey is now as full of airs as any city dandy, perambulating hither and thither, strutting in front and at the sides of his hens, apparently more intent on exciting admiration of his own beautiful person than bestowing it on theirs. This species of courtship continues throughout the spring, even after the hens have ceased laying and began to sit. His attention to them during this period often becomes so officious and annoying that it is best to separate him entirely from them. The hen turkey is very shy in selecting her nest, and sometimes is so particular as to be a number of days in securing a place to her fancy. In this she is probably governed by instinct to provide a safe place for her eggs and her young. The first intimation, after mating, of her disposition to lay, is by her stealing away from her companions, going here and there, with head down as if meditating upon the task before her. If closely

watched she will be most likely to give up her project for the present. Even after she has begun to lay, she must be followed at a distance. A better way to find the nest, if out of doors, is to observe the direction in which she returns from it. If left to her own choice, the turkey will usually make her nest out of doors, at the side of walls, under a bush, in long grass or in a thicket. Although so fastidious in the site of her nest, she is not at all particular as to the material of which it is composed, and is as well contented with the bare ground as with a bed of leaves. After the place is selected it is generally two or three days before the first egg is laid. There is a great difference of opinion respecting the age when turkeys are in their prime, and how long they continue profitable. Some consider the cock in his prime at three years, and the hen at two years old; whether they should be continued to breed from after this age depends on the discretion of the owner. Some cocks are famous for being the sires of a healthy offspring, and so are some hens for being good sitters and nur-

cil. Some people recommend the sitting of two turkeys at the same time, so as to be able to give both broods to one hen, that the other may be again at liberty to commence laying and of course a second brood is got much sooner. So closely does the turkey hen sit during the time of incubation, that frequently she has to be forced off the nest. This must be daily attended to; otherwise from want of food she will get much reduced. The turkey is rather an absent bird, and so much does she enjoy herself when from the nest, that she often forgets to return to it in due time, but she must be watched and never allowed to remain off more than twenty minutes, unless the weather is very fine, when she may have the indulgence of a few minutes longer. The time of incubation is twenty-nine days although instances are mentioned in which thirty-one days have elapsed before the turkey-chick left the shell. Some of the turkey-chicks will be slower in freeing themselves from the shell than others, they should be left undisturbed under the hen where they will do much better than if they or the

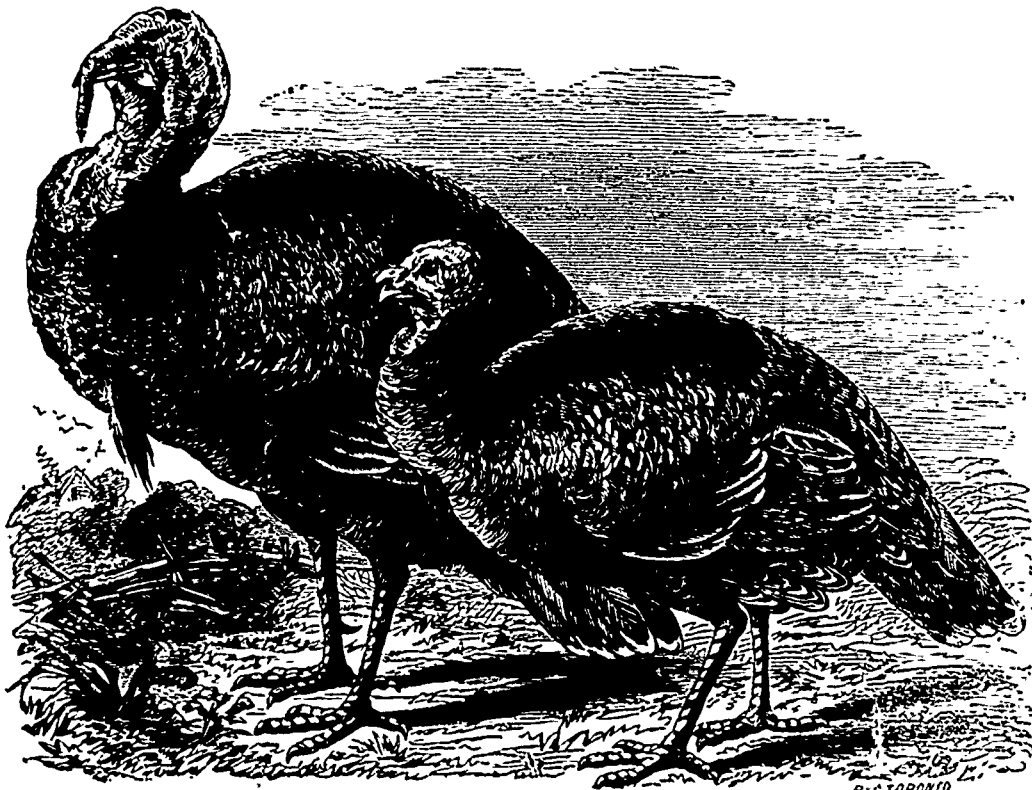
chicks already hatched are removed. As soon as the chicks break the shell, it may be known by a peculiarly soft and tremulous sound uttered by the turkey hen, as if recognizing the new-born brood, and expressing the anxious sensations that now throbbeth her bosom. There is no sound more touching or plaintive, a sound she never makes until this epoch of her existence.

The varieties of the domesticated turkey are in England divided into the Norfolk (black all over) and the Cambridge. The latter is of all colors, varying from a pure white to a dark coppery bronze. In this country we enumerate two other varieties, the Narragansett and the Bronzed Black, this latter undoubtedly the finest and strongest

bird of all our domesticated varieties, resembling, as it does, as closely as possible, the original stock, and looks not dissimilar to the wild bird, and next to that weighs the heaviest, fattens the most rapidly, and can be reared with much less trouble than any other variety.

Aiding a Chicken's Birth.

A writer in the *Journal of Horticulture* says, "I send with this an egg-shell from which a chick has just been hatched. If you examine it you will find it a double shell. I do not mean to say that the hen laid it so, but I forward it as a successful dodge by which I think I saved the life of a chick. Yesterday morning the hen in returning to her nest trod upon and thoroughly crushed, the original shell, I think it was weakened by a previous small crack in the narrow end, which I had covered with a little bit of postage stamp edging. I was certain the chick would die if left, as, if not crushed the skin would bind it and dry to it; but it would probably have been crushed between the other eggs, as I have often had happened. They were due to hatch to-day, and I therefore thought that an outside shell might preserve it for the necessary time; so I took an egg-shell that had been used at breakfast, raised it a little, and shipped it over the small end, and joined it to the original top (which was not much injured), with postage plaster, and put it under the hen again, it was successful, as I found that egg and another hatched this morning, and the shell just as I forward it to you. I have written this account because the plan may be useful to others in similar cases."



ses. To dispose of such, then, before symptoms of declining constitution are displayed in the health and number of the chicks, would display a want of judgment. One fecundation is sufficient to render fertile all the eggs which are of one laying. This has been strongly denied by some, but the fact is undoubted. The number of hens running to one cock should not exceed fifteen, and the majority of breeders allow even a smaller number. Some turkey hens lay every day; others lay two days in succession, and miss the third, while others lay only every other day. The number of eggs laid by the turkey at one time varies from twelve to twenty—most generally sixteen or seventeen; a number quite sufficient to be securely covered. The eggs should be taken from the nest every day as soon as convenient, and placed in a vessel containing bran or some other bad conductor of heat. The desire a turkey displays to sit is known by her remaining on the nest. It is not desirable that she should have the eggs immediately given to her; it is best to test her constancy for two or three days, at the end of which, should she prove true, they must be given to her—care being taken to have the eggs, if they are not all her own, as near as possible of the same age. To accomplish this the eggs should have the date on which they were laid marked on the large end with ink or an indelible pen-

Dorkings.

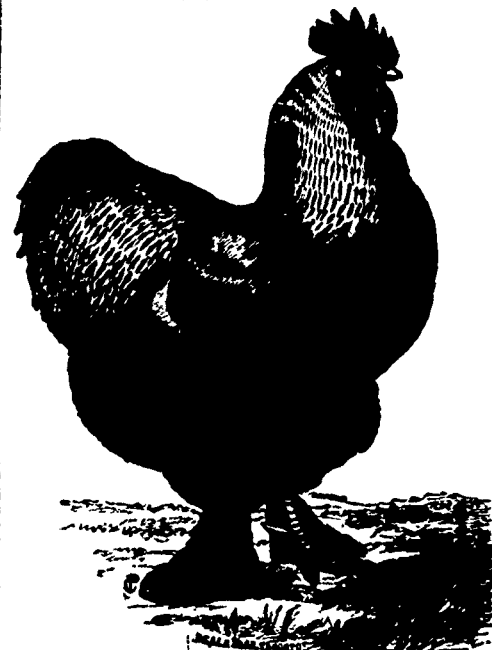
The origin of the Dorking fowl is a difficult point to determine. Some writers hold the white to be the original breed from which the other varieties were produced by crossing with other breeds, in proof of which it is asserted that in former years nothing could be more meretricious than the production of the fifth toe in colored chickens, which of the best strains. It is however generally conceded that the Dorking was first introduced into Britain by the Romans, and the description given by the old Latin author Columella, although differing materially in many points from the colored Dorking of today, unmistakably points to that fowl as the most prolific, and in other respects the most desirable breed for the old poultry-keepers of Rome to propagate. The information of its descent through which this breed has passed during the many centuries which have elapsed since its first introduction into Britain to the present time, it is of course impossible to determine, but of this we are fully aware, that with all the vaunted qualities of French fowls, they have been unable to displace it in England; and the Dorking of to-day bred to the high standard of perfection to which it has attained, is pre-eminently the English table fowl. No doubt the Dorking has been greatly improved, especially the colored variety, since its first introduction into England. The bird with the "square frame" and "five claws," described by old Columella would scarcely be recognizable in the Dorking of the present day, but this only shows how capable of improvement all breeds of poultry are when carefully bred to a standard.

In judging the merits of a pen of Dorking fowls, size and weight form the most important consideration. The body should be deep and full, the breast protuberant and plump, especially in the cock, whose breast as viewed sideways ought to form a right angle with the lower part of his body. The back and breast should be very broad, with no approach to hollowness in the back. The legs should be free from feathers, stout in form, and white in color, and the cock should be spurred on the inside of the leg and not on the outside as is occasionally seen. The foot must be five-toed and the extra toe should be well separated from the others and turned upwards, well developed, but not running into monstrosities of any kind as it is rather prone to do. An excessive large toe, or a triple toe, or the fifth toe being some distance above the ordinary one, would be a glaring fault in a show pen. The head should be proportionate to the size of the bird; the wattles well developed. The comb may in colored birds be either single or double but all in one pen must match. Single combed cocks should have large and perfectly erect combs, freed from side sprigs, and not lopping over to one side as may be seen in many good birds. In the rose-combed cock, the comb should be square in front and ending in a raised peak behind, without any depression in the centre. A large well-formed tail, not drooping, but carried well up over the back greatly improves the appearance of the Dorking of all varieties. The white variety, like the colored, may also have either single or rose comb, and similar in every respect to the colored; the color of the body should be perfectly white. Any tendency to straw color, although not a disqualification in a show pen, is decidedly a fault. Silver Greys, a breed held in high estimation by many fanciers, possess in addition to many of the good qualities of the colored birds, great beauty of plumage. In this variety, color is very important, a single white feather in the breast or tail of the cock is held as a disqualification in a show pen. There is but little doubt that this variety was produced from the Greys and perpetuated by careful breeding. By careful breeding, Dorkings should average, the cock 10 lbs. and the hen 8½ lbs., although for exhibition birds these weights would have but a poor chance of success where competition would be close, cocks have been shown weighing over 14 lbs.; we are speaking now of the colored variety only. Like other breeds of ornamental poultry, the Dorking degenerates from inter-breeding if fresh blood is not frequently introduced they will rapidly decrease in size. Their peculiar disease is "bumble foot," a chronic gathering or abscess, and is considered to be hereditary. As a layer the Dorking is not nearly so good as some of our other breeds, except when very young, and in winter is decidedly bad. The chickens are also of very delicate constitution, cold and damp weather being very injurious to them. The great merit of the Dorking is, as has already been stated, their unrivalled excellence as

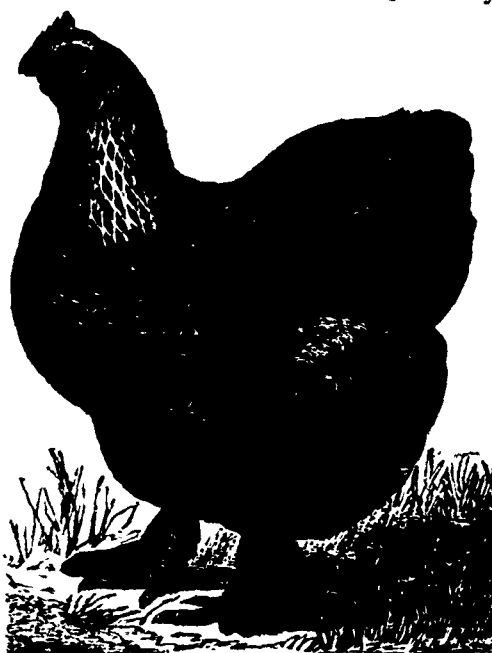
table fowls. The meat is not only abundant but of good quality, and surpassing any other; it is produced in the greatest quantity in the breast parts, breast, merry-thought, and wings. They are evenly fattened to which placed in comparison for that purpose, and in addition it may be noted that the hen is an excellent sitta and mother, remaining long with her chickens, and in this respect peculiarly suitable to raising early broods.

Partridge Cochins.

Of this breed of fowls Mr. Wright says: Among a certain class of poultrymen this class of Cochins have not been so popular as the Buff; but their



more sober color fits them especially for many amateurs, and they have never lacked enthusiastic admirers. In the United States, it is a particularly



esteemed variety, having been introduced many years ago by the Rev. Mr. Marsh, of Massachusetts, and it is asserted that birds of his strain are still to be found descended from it, which have never been crossed by any other importation. In Canada this breed is fast becoming very popular, as the entries at our exhibitions fully testify. Of the many recognized varieties the Partridge Cochins is perhaps the most difficult to breed to a show standard. In this all breeders are agreed, and the cause may be traced to the fact that the first Partridge Cochins were undoubtedly more or less brown-breasted, a color which in England has not been for a long time allowed in the show pen. It has been stated that the black breast so desired was produced by a cross from the Black Cochins; but for

this assertion there appears to be no just ground. To assert that such a cross was never resorted to would not be safe, yet it is well known that in some strains where black breasts are to be found no such cross was ever resorted to. The old brown-breasted cocks and streaky-marked hens were bred true to feather with comparative ease; but the change to black breasts in the cocks was made before that to solid marking in the hens, and hence the origin of the difficulty. The means of overcoming the difficulty appear to be understood as yet by only a few breeders, and various amateurs of some note proceed upon a somewhat different system. A little further on we shall give some rules which embody the most successful experience of the best breeders on this subject. We now proceed to give a general description of Partridge Cochins as recognized by the best English breeders and exhibitors.

The Partridge cock should be a rich and rather orange red about the head; and hackle the same, with a black stripe down the middle of each feather; the saddle feathers being similar. The back, shoulder, coverts, and wing-bone, are a rich red of a rather dark shade; the lower wing coverts being glossy black, with blue or green reflections forming a "bar" across the wing. The primary or flight quill feathers should be black, with an edging of rich brown or bay on the lower edge; secondaries, bay on the outer edges, and black on the inner, each feather being metallic black on the end, so as to form a black edge about an inch wide on the upper side of the wing-butt; and forming a rich back-ground under the tips of the saddle-hackles. The breast, thighs, under parts, tail and leg-feathers should be rich in an exhibition bird; white in the tail or brown in the breasts or thighs being objectionable. The shanks should be dusky yellow, a shade of red between the scales being rather a recommendation than otherwise.

The Partridge hen has a hackle of very rich color, densely striped down the middle with black; the remainder of the plumage being light brown, pencilled over with very dark brown, the pencilling following the outline of the feather. According to the "Standard of Excellence," the feathers on the wings and side should show the shafts of a rich creamy-white, forming a white streak down the centre of each feather, and this color is much the easiest to breed; but in England, both the judges and best fanciers have of late shown a strong objection to this, and a decided preference for solid pencilling all over the body, somewhat resembling the Dark Brahma; indeed, it is probably the superior effect to the eye of the latter breed which has led to the change. The total absence of the white shaft is therefore now sought by the best breeders, and finds most favor with the judges, though it is much harder to breed to perfection. The most important point however, is that the breast up to the very throat be solidly and densely pencilled over with crescent-shaped markings, a bare yellow or clayey breast being absolute disqualifications if the competition be at all severe. In a high class hen, the marking on the breast is very nearly like that on the hack and sides. The purer the brown color of the ground the better; and any approach to a yellow ground is in exact proportion a decided fault, though it has sometimes been justly condoned for by unusual accuracy or beauty of pencilling. Legs dusky yellow. Leg-feathering should be brown pencilled over as on the body.

The mating of birds in this variety is exceedingly difficult, requiring the greatest care and attention. In breeding cockerels, a cock should be selected which in addition to presenting the ordinary Cochins characters, has a really black breast, fluff and leg feathers, with hackles of a rich red, striped with dense black. The hackle behind the neck may approach to orange red, but towards the throat in front should be very dark. Saddle hackles ought to be nearly the same color, but need not be quite so dark. The shaft of the feather showing as a thin cream-colored line in the hackle will not much matter, but the web of the hackle should be jet black quite up to the stem or shaft. The hens to mate with such a cock should be of a very deep and rich brown ground color, almost the color of roasted coffee, and with rich, reddish-orange hackles. The distinguishing characteristic of the markings of the breast feathers is that the pencilling, though very small and minute, be close, almost black in color, and nearly covers the ground, making a very dark and rather dull looking hen. In such hens the shaft of the feather usually shows slightly; but this is of very little consequence in breeding cocks, though it will be so much the better if all streak be absent. The long secondary quills will be nearly black, and the cushion feathers are often scarcely distinguishable from black; but even in that case a facing of the ground color should quite extend round the feather; for if it does not there will be a want of brightness in the cockerels produced. From such mating, at least

after a year or two's breeding, a very large proportion of cockerels will be fit to show, though for a little while after commencing not much certainty can be expected.

For breeding pullets, on the contrary quite a different type will be necessary. The breast-feathers should be very solidly and accurately pencilled with several perfect semi-circles or crescentic markings, so thickly as to nearly approach the general effect over the rest of the body. The other feathers ought to show much the same character, and the whole marking should be rather large and broad, and very intense in color, the shaft of the feather showing if possible not at all. The hen's hackle may vary; if she be a show-bird, there should be a solid stripe down each feather; but as far as breeding is concerned some of the very best marked pullets are produced from birds whose hackles are somewhat pencilled. The ground or margin color of the hackle in either case should be a rich bright gold color, and the dark marking should reach well over the top of the head. The ground color over the rest of the body will be rather a light brown, approaching buff, but totally free from any bright yellow, which is objectionable. The cocks to mate with these hens should have a reddish orange, rather than red, hackle, densely striped with black; and a few brown spots on his fluff or even breast will be little injury to him as a pullet breeder. In all cases the pencilling on the hens must be very dark, almost, if not quite, black, and the breast especially well covered with solid pencilling. This last being most important of all.

The Poultry of 1872.

Mr. L. Wright in the *Journal of Horticulture* gives a series of articles on the above subject from which we largely extract, believing that the information conveyed in them will be of a much benefit to poultry fanciers in Canada.—“Very rarely,” he says, “is it that any breed of fowls seems to stand precisely as it was the season before, some improve, others seem to go back; and were it not for this ebb and flow, varieties would, I suppose, become perfect in the end, and then the charm would be gone, for it is in aiming at an ideal or impossible standard the pleasure greatly consists. To attain by your own patient study and perseverance a beauty of contour or a perfection of marking never before reached, is the legitimate triumph of the fancier. I repeat again what I have often said—any one who will stick to his own breed can never be beaten by money merely; he will sooner or later make his own mark, and get his own strain recognized.”

“Generally, however, I never remember a year in which more money has done so much as in the past season. Some of the most constant winners, to my personal knowledge, have never yet bred a good bird of their own—all their triumphs have been bought. The breeders who have thus sold their stock at high prices should be the last to complain of this, and it is not on this account I mention the matter, but for the sake of a warning which I have given before, and wish emphatically to repeat for the sake of beginners, that a man who is always buying literally cannot breed good stock, except now and then by accident. He is not only debilitating his birds by over showing (in most cases), but he never gives his so-called ‘strain’ a ghost of a chance to ‘settle’ into something definite and good. Now and then he makes a lucky hit in mating, perhaps, but he is sure to spoil his work next year by some other bird he buys. It is very well at commencing to spend money freely if you are fortunate enough to have it to spend; but having once got a thoroughly good supply of stock birds together, the more you keep in your own hands the sooner you will get to the top of the prize-list; and to get there by his own honest exertions is the fancier's true pride. Several daily papers have lately remarked on the high degree of pleasure and intellectual gratification experienced by the successful short-horn breeder, and they are quite right; it is a true triumph of mind over matter. And what I wish to point out is, that fowls will afford the very same gratification at a cheap rate, and in a small space, to all who will take the only royal road to it; and the benefit to many an overworked brain of such a really intellectual pursuit, which at the same time is a mental relaxation and necessitates more or less of out-door exercise would be beyond calculation, as I believe it has been to me. But I have got far away from the poultry of 1872.”

“Do not let anybody laugh if I begin with my old pets the Brahmans, for they have now headed all classes in point of numbers, and are more kept than any other two breeds together. I do not get tired of them, and I still think a cock of the best type to be the noblest in appearance of any fowl we have. He has the dignity of the Cochins, and the grace and

springy gait of the Game. Many will laugh at this, but I can call to mind more than one grand bird which, if you seized one of his hens, would be ‘on’ you instantly, and which would certainly thrash any other bird but a Game cock; and I well remember once selling a fine young cockerel which killed a large rat in the roosting-house the very first time he arrived at his new quarters. I stick by my Brahmans, and grow fonder of them every year. With the Darks I must say I have not been satisfied this season. The pencilling of the average prize pullets has not been what it was in 1871, and there has been a growing tendency in them to overhanging, twisted, shapeless combs, and sour looking heads, which to a true Brahma-fancier are both abominations. Hens have shown these faults of comb still more plainly; and I would state for the warning of breeders and judges, that my experience has proved conclusively that it arises chiefly from over feeding when young, especially with meat, in order to get mere brute size, and I fear it will continue so long as mere size can win. I would not be misunderstood on this point. If size be really bred in a bird, and attained by such feeding on good plain diet as simply maintains perfect health and appetite, it is a great point, but size forced into any given bird invariably destroys all the finer points that every bird would otherwise have shown. It is not by extra feeding that the Americans produce their enormous Light Brahmans, but by carefully selecting breeders with large frames. In cocks, also, combs have been getting large, and I have also been sorry to see the heavy Cochins style of bird again increasing at various shows. The objectionable yellow color also seems on the increase, and needs to be very carefully guarded against. The only remark I have to add is that it seems now impossible to win with any cocks but the Black-breasted. The tendency was plainly that way last season, but this year the idea seems quite fixed. I admit these birds look more showy, but I regret, notwithstanding, this hard and fast line; for the very best pullets I have ever seen were bred from very dark but slightly mottled breasted birds, on the whole, it is, perhaps, combs that need more attention at present in this variety.”

“Of the Light Brahmans, on the contrary, candor compels me to chronicle a most gratifying and marked advance in quality. I do not so much refer to prize birds, not having seen any hens or pullets superior to those Mr. Crook bred several years since, and which are still winning in other hands, but the improvements on the general run of the classes has been extraordinary; at least half the pens exhibited show now very fair fluff and cushion; and leg feather, too, is coming back again. The cocks are not so good as the hens, however. The number of birds shown with disordered wings this season was frightful, and needs very severe measures, for the most beautiful bird, if he has this blemish (in most cases quite preventable when taken in time), is not fit to look at. The male sex of this bird (also is showing) more of that disgusting dirty straw color, and the correct color in the hackles is, in my opinion, scarcer than last year: Still, even the cocks have gained in size, saddle and combs, and with careful attention to the faults I have named I shall almost expect to see a few cups wrested next season from the hitherto victorious Dark variety. Size in both sexes has advanced perceptibly in this breed, owing, in several cases within my own knowledge, to an American cross, which I believe I was the first to recommend for that purpose. Here I may, perhaps, recall the fact, that when I stated large birds, weighing 14 to 16 pounds for cocks, and 10 to 12 pounds for hens, were to be found in America, certain would-be authorities, who knew great deal less than they pretended, very discourteously implied with sufficient plainness that my statement was a mere ‘cram.’ Well, within the last season, an imported cock weighing no less than 18 pounds, and a pair of hens weighing nearly 13 pounds each, have been shown, and perhaps that may convince those to whom my assertion was not sufficient. On the whole, size seems in a very fair way to be reached, and the points to be looked to in Lights at present, are chiefly still more general leg feather in both sexes, and greater purity of white and intensity of black in the cocks. I would again state, as I have done before, that by those who desire to keep Brahmans for their economic qualities, the Light is at the present, on the average to be preferred, being generally a better layer of larger eggs. I have been glad to see how many have lately taken up this variety, and where it can be kept moderately clean no more beautiful fowl can be had.”

“Having,” continues Mr. Wright, “in my last notes upon this subject, given my own ideas as to the progress or otherwise of the Brahmans, I come next to the Cochins; and I think few fanciers will be disposed to deny that Buffs at least showed during the past season a very considerable advance. I have not for years observed such a number of birds with

the grand old ‘humpy’ development. No doubt this was mainly lost for years by the insane dread of the lock (still felt by one or two judges I could name, whose awards present accordingly a conspicuous contrast to those of the arbitrators most acknowledged in the fancy), which had the effect for a time of annihilating proper leg-feathers, for—and it is worth noting—good feather and the essential points of cushion and fluff, will, as a rule, always stand or fall together. No one dislikes real vulture-lock more than I do, and especially does no one hate a plucked bird more; but I have heard birds called locked which in that point were simply perfect, and the mischief done by such ignorance was incalculable. However, during 1872, we saw plenty of real Cochins; and I for one was glad to see the richer, deeper shades of Buff again in favor. How many good Buff strains were ruined in color by the rage for that very light color almost running into silver buff, the breeders best know; and it is on many accounts a source of gratification that the deep Lemons and rich Buffs should be once more in fashion. Breeders have entered upon a sound path, and I fully expect to see still better birds in 1873. In Partridges, the most noticeable feature is the evident tendency of both breeders and judges to prefer the solid pencilling which used to be called Grouse, to the streaky feathering which used to be known as Partridge. The Grouse marking is bred as light as the Partridge used to be, but still solid and free from streaks, and I confess I think the change an improvement. It not only pleases most eyes better, but is harder to breed than the streaky marking and hence may seem more worthy of the fancier. The hens seem to have shared the advance of Buffs in shape, but I do not myself think the same can be said of the cocks, which, moreover, show an increasing tendency to streamers (often forked) in the tail, want of fluff, and too little width of saddle. In Whites the hens appear stationary, but the cocks have been shown both whiter and more Cochins in shape this season than usual. I may also note that better Blacks have made their appearance than have been observed for a long time. There is a rare opening in this variety for any skilled breeder, to even a decent pen of Black Cochins rarely fails to secure a prize in the any-variety class, and a really good hen would win almost anywhere. A few good Cuckoos have also been shown.”

Dorkings I must say have, according to my judgment, perceptibly retrograded. Some pens of old Grey hens have shown the standard of excellence of two or three years back; but I have seen no chickens which appear likely to take their place among the winners of the year. In cockerels, the falling off is perhaps less marked, but is still evident. Doubtless the most extraordinarily wet season has had much to do with this. Few chickens have been perhaps so large as usual, and in Dorkings the difference is fastened upon at once, whilst in other varieties it is not given so much prominence. Another noteworthy point is the growing tendency to make Grey Dorkings birds of color. All must have noticed that the very dark hens have a perceptible difference given them over the grey marking which once gave the name to the fowl. In silver greys on the contrary, the tendency seems precisely the other way, viz:—to get or encourage more size at the expense of all that used to be considered the only proper color. Many prizes have been given to cockerels which were not Silver-Greys at all, but were very large. White Dorkings appear to me to be getting yellower and coarser in the combs, at least so far as the cocks are concerned. As regards my own individual impressions, I cannot give any better character of the Spanish; though here again I have not the slightest doubt the miserable weather is chiefly in fault. Faces have been coarser, and especially the beautifully smooth ear-lobe seems lost. It used to be bred without a fold, now an unfolded deaf ear is rare indeed. Rough faces seem the rule. I believe much of this to be owing to the recognition of trimming the faces in this breed. I have no wish to re-open a fruitless controversy on this point, and freely admit that it is so recognized now, and admitted by all parties that any charge of fraud would be ridiculous—even years ago, I never did charge fraud in this particular, for this very reason. All I say is that formerly the skill of fanciers bred birds whose faces needed no trimming, and that the recognition of this practice, doing away as it did with the necessity for such really fine quality of face, has caused it to be lost. I have seen birds in old days hardly needed a single hair being extracted; but rare indeed are such birds now, though it is curious to see how Bristol keeps up its old reputation for this breed, first established by the skill and judgment of Mr. Rake, maintained by Mr. Roue, at present retired, and best known as the able Secretary of the Bristol show, and still upheld by Mr. Jones and others.”

Rural Architecture.

How to Build a Wire Fence.

Seeing an enquiry for experience in building wire fence, and how to make a good one, I will contribute to brother farmers that which I have.

In the spring of 1869, I commenced improving a prairie farm, and was obliged to fence with wire. I built two miles by driving posts eight feet apart. I put on four wires (No. 5) with staples, and strained up with rollers against the post, and thought I had a good fence. The next spring I built one mile, posts sixteen feet apart, wire put on with staples, but the staples pulled out. Last spring I built another mile, five wires, posts twenty feet apart, wire put through three-fourth inch holes bored in the posts, and stays put on with staples. The stays were eight feet apart; then No. 16 soft wire put on for another stay, making the stays every four feet. I strained the wire with two-inch oak pins, put in a heavy flat post, with the hole morticed in square two inches, to hold the head of the pin, which is made square and turned with a monkey-wrench to tighten the wires. Thus made a good fence and the best I had built. No cattle have been through it. It is with difficulty that a man can get through—one man went a half-mile around because he could not get through.

This spring I have fenced a pasture to keep sheep in, which never were stopped by fence before, and it is this fence I call a good one, and I will tell how to make it. Set the corner post three feet in the ground, with a two-inch oak pin through near the bottom, two feet long, then put heavy stones on the pin, and fill the hole up with stones. This is to keep it from pulling up, which it will do, if not well secured. This post must be braced. Have good, straight, strong posts; set them thirty-two feet apart. After setting, (which we do by sharpening and driving with a sixteen pound sledge, putting them down two feet at least,) bore the holes with a three-fourth-inch bit to run the wire through. Five wires should be put on, for cattle, eight inches apart; and seven wires six inches apart—except the top one, which may be eight inches—for sheep. Use No. 8 wire for at least half the upper part of the fence, and still better if all No. 8. Commence at the first post from the corner post to put the wire through the holes. Unroll the wire, which is best done by putting a coil on a roll made for the purpose; run the wire all off, then fasten the end to the corner post. Put on all the wires in a similar manner before moving on, then move on to the end of the wires unrolled and unroll another, splicing each time as they run off. The splicing should be done by lapping the two end posts ten inches and twisting together, and looping the ends back so as not to draw through. This makes a splice that will pass through the holes. Put on about forty rods in length, then take a strong "hand-spiko" and loop a wire around it, and have two men strain the wire tight enough to take all the kinks out. This is done by sticking one end of the lever in the ground. When all are strained put on the "strainers" at the end of each wire. This "strainer" is my own invention; not yet patented. It is made of No. 8 inch wire, in this way: Take a piece of good wire three feet long, bend it around so the ends lap two inches, twist them well together and loop the ends back; flatten down the two strands so as to be three inches apart; take each end in your hands and bend the centre over a two-inch round stick until the two ends come together. This makes a sort of a cleyes. Then make a two-inch hardwood pin, ten inches long, with one end shaped to put a monkey-wrench on to turn it. Bore a small hole in the middle, to put one end of the wire through to fasten the wire to the pin; then bore a three-fourth inch hole, one and one-half inches from this to put a stick in a foot long. This is to keep the pin from turning back when strained up. The stick must be lashed to the wire. Now splice one strand of the fence wire on the wire strainer, put the two-inch pin through the two loops in the other end, and commence unrolling wire as before, and connect the end to the pin by running it through the little hole, bending the wire around the pin. This strainer will strain from both ways as tight as is necessary—you can strain eighty rods if the ground is level. When the wires are all on, strain up by turning the pins which serve as rollers with a wrench. When well strained, which is one of the important things in a wire fence, put on the stays with staples 8 feet apart, drive the second staple from the top and bottom wire tight up on the wire; leave the rest a little loose so the wire will slip through. Next put on No. 16 annealed wire for additional stays, which will make them 4 feet apart.

If the work is well done you will have a good wire fence.

Two things are necessary. Have the corner posts firm and well braced, and the wires strained tight.

Now as to the advantage of putting the posts so far apart. It takes so many less posts, and the fence sways a little when a horse or other animal comes against it, and again springs back. The stays should not touch the ground to prevent its coming back. Make the fence four feet high.—George W. Brown, in *Industrial Gazette*.

How to Paint Country Houses.

The following practical suggestions were embodied in an excellent article read recently before the New York Farmers' Club, by H. E. Colton:—

Paint on the farm is no longer a luxury; it is a matter of economy, and custom or fashion has made it a necessity. Its use on farm-houses and farm utensils is a matter of self-preservation. If the farmer would add to his store of funds by taking a few summer boarders, he must make his house attractive, pleasant and neat. He cannot do this without paint. Hence, how and with what shall the farmer paint his house? If his house is in a grove of green trees, a light buff is best; if exposed, a drab, or French gray. This for the body of the house, with window-blinds green, cornices and copings brown, light or dark, as may suit the taste. We state these shades on general principles, and the farmer who uses them will seldom fail to have a house that will be admired.

To get these shades. White is the base upon which all tints are founded. There are three kinds of white paints; white lead, oxide of zinc, and zinc lead. White lead is the most costly, and although very generally used, and until the introduction of zinc-lead, considered the best, is really a very poor stuff, as well as very dangerous as a poison. It chinks from action of the atmosphere, and very rapidly turns yellow. Oxide of zinc is very seldom used for out-door work, as it is unfit for such use, because it cracks and peels off. Zinc-lead is an original pigment containing zinc and lead oxides. It does not chalk or turn yellow like white lead, nor crack and peel off like common zinc. It has as much body and more covering power than the best white lead. At the same time it is one-third cheaper in price. It is not poisonous to use, and when mixed in oil it does not settle, which fact is a great convenience to farmers. Hence, for these reasons we recommend it in preference to any other paint. All other paints can now be bought ground in oil.

To make a buff, take 100 pounds of zinc lead and three gallons boiled oil, and two gallons spirits turpentine. Mix thoroughly, then add yellow-stone ochre ground in oil until the desired shade is reached. Try a little occasionally on a board, as a paint looks differently in a body from when applied. If a canary yellow is required, use chrome yellow. The same color will give a canary tint to the buff. A very much admired tint is made by using a little black with the ochre.

For a drab, use a little lamp or drop black instead of yellow ochre. Pretty tints may be made by using amber or metallic brown paints.

It takes less color to tint zinc lead than white lead, and it holds the tint better. The best ochre comes from France; it gives a tint that does not fade, but shades from chrome yellow will fade.

Tints made from metallic paints as Prince's, etc., do not fade. Umber makes a pretty tint, but is apt to fade in the sun. For copings, use one of the brown metallic paints.

For window-blinds, Paris-green was formerly used, but so many accidents have happened from it that but few now use it. Green may be shaded lighter by using a little zinc lead in it. It contrasts well with almost all colors, whether pure white or a tint.

The interior of houses may be painted a pure white or tinted. In painting inside, to make a flat zinc color, use all spirits of turpentine. In fact many use more of it on outside work now, especially when they wish to make a flat color without gloss. Oil alone, especially with zinc lead, gives a rich satin gloss. This, for the inside of houses, adds much to the appearance of the paint. To paints which do not have this gloss property in themselves, it is imparted by mixing a little varnish. Doors are usually painted oak or walnut color. This may be bought already mixed for use (called training colors) more convenient to the farmer than to get the tinge himself. Umber is generally used.

For fences and the lower class of farm buildings the idea of the farmer is generally to get something cheap. We have always seen that the best is in the end the cheapest. The object of painting is to keep out moisture, and thus prevent wood from decay. Hence,

a paint which does this perfectly is the best, even if it costs twice as much. A cheap mineral or earth paint may be very good, but when the question of renewing is taken into consideration, it may not be so cheap or so good as a paint that costs more but lasts longer. We have indicated such in the zinc lead, but for the general uses of the farm we think its mixture with some of the ochres, mineral or metallic paints would be of great use.

In oil, always get the best linseed you can. Never use petroleum. It doesn't pay in the end by a great deal. Porgie or menhaden oil is good for very common work; but on houses, or anything nice, use as pure linseed as you can buy. For farm utensils, on wood work, we would advise using the best paint; tint it if you want color, on the iron or steel, red lead is, perhaps, the best material you can get. The farmer can now, if he chooses, so great have been the improvements in the trade, buy his paints mixed up, ready for use. These save him much labor in mixing and tinting.—*Farm Journal*.

Ornament in Wood-Work.

The *American Builder* gives carpenters and architects some very good advice in regard to the ornamentation of wooden houses by cut and carved work:

You may be sure that the more elaborate and covered with ornament and carving the building is, the more you are going on the wrong track. Real beauty consists not in added features, but in the body of the work itself, and this fact should always be borne in mind.

The principles of carving wood for outside ornament is wrong. We would not say it is to be discarded altogether, but still we have that leaning. Cut work, and that of the simplest kind, is the best. Complexity in forms and ornament is mostly bad. It not only requires unnecessary labor to produce, but there is actually vexation in the mind of the spectator. When people see a thing that is so crowded with intricate work that it gives them trouble to make it out, it is tolerable good evidence that such work is not exactly what is wanted.

Give great attention to the sizes and proportions of the doors and windows, and pay especial attention to the sizes and construction, and never, if possible, conceal its principles, but let them form the basis of the ornament. Mouldings, cornices and miter are not to be put in exposed positions. It is surprising what an excellent effect can be produced by cutting, even with little or no moulding or carving.

Modern Barbarisms.

In all parts of the United States there are cruel operations for fictitious diseases, and it is extraordinarily strange that men with any pretensions to sanity should be led by popular error to believe in such absurdities. In Kentucky every horse happening to go lame or be merely stiff in his fore legs has the "sweeny," and a hole is made in the shoulder and a quantity of irritating stuff put in; and when a sore is made to discharge, "There," says the wise acre, "the sweeny was very bad." In New York State I have seen the chief farmer of a gentleman on the Hudson, stuff pepper and salt in the opening after altering pigs and use turpentine or something as severe on every wound whether made accidentally or not. When I alter an animal, I do it in the quickest possible manner, and in no case finger about, dividing or dallying to cut "just so." I slash off the part after an opening has been made to get at the testicle, and do nought more; and in pigs, little or big, they never do amiss. In lambs, I draw the glands; for it can be done quicker. On no occasion do I use any application, and yet there are thousands who will persist in punishing unnecessarily the poor animals in this necessary operation by fingering about to leave such parts as die away and are of no earthly or any other use in the world.

I feel quite certain in my mind that if every drug store was smashed up, and none of any kind allowed to be used, that the number of lives saved by the absence of means for the foolish people to drug and quack would be far greater than the few who would be lost for the need of medicine. However, if missionaries could be sent around to warn men who deal death by the stupid use of quackeries, and mothers against dosing their young with remedies, there would be a thousand lives saved where one soul is in foreign parts.

I have had charge of stock for more than forty years, consequently must know something about it, and would willingly say more; but these ignorant men are not confined to the illiterate, and many papers are afraid to allow correspondents to speak plain lest subscribers should take offence.—*Working Farmer*.

Poetry.

WORK AND WAIT.

A husbandman, who many years
Had plowed his fields and sown in tears,
Grew weary with his doubts and fears.

"I toil in vain! These rocks and sands
Will yield no harvest to my hands;
The best seeds rot in barren lands.

"My drooping vine is withering;
No promised grapes its blossoms bring;
No birds among its branches sing.

"My flock is dying on the plain,
The heavens are brass—they yield no rain:
The earth is iron—I toil in vain!"

While yet he spake a breath had stirred
His drooping vine, like wing of bird,
And from its leaves a voice he heard:

"The germs and fruits of life must be
Forever hid in mystery;
Yet none can toil in vain for me.

"A mightier hand, more skilled than thine,
Must hang the clusters on the vine,
And make the fields and harvest shine.

"Men can but work; God can create;
But they who work, and watch, and wait,
Have their reward, though it come late.

"Look up to Heaven! behold and hear
The clouds and thunders in thy ear—
An answer to thy doubts and fear."

He looked, and lo! a cloud-draped car,
With trailing smoke and flames afar,
Was rushing from a distant star.

And every thirsty flock and plain
Was rising up to meet the rain
That came to clothe the fields with grain.

And on the clouds he saw again
The covenant of God with men,
Re-written with his rainbow pen;

"Seed time and harvest shall not fail,
And though the gates of hell assail,
My truth and promise shall prevail."

Miscellaneous.

Our Thirty-nine Articles of Faith.

We believe it to be our duty—
To Strive

1. The beating of animals.
2. Overloading.
3. Overdriving.
4. Underfeeding.
5. Driving galled and disabled animals.
6. Tying calves' and sheep's legs.
7. Cruelties on railroad stock-trains.
8. Overloading horse-cars.
9. Neglect of shelter for animals.
10. Plucking live fowls.
11. Dogs-fights.
12. Vivisection without anaesthetics.
13. The use of tight check-rein.
14. Bleeding calves.
15. Clipping dogs' ears and tails.
16. Bagging cows.
17. Skinning live eels.
18. Hard usage of poultry in market.
19. The use of sparrard floors.

To Introduce

20. Better roads and pavement.
21. Better methods for slaughtering.
22. Better methods for horseshoeing.
23. Improved cattle-cars.
24. Drinking-fountains.
25. Better laws everywhere.
26. Our paper in Sabbath schools, and among Children.

To Induce

27. Children to be humane.
28. Teachers to teach kindness to animals.
29. Clergymen to preach it.
30. Authors to write it.
31. Editors to keep it before the people.
32. Drivers and trainers of horses to try kindness.

33. Owners of animals to feed regularly.
34. People to protect insectivorous birds.
35. Boys not to molest birds' nests.
36. Men to take better care of stock.
37. Everybody not to sell their old family horse to owners of tip carts.
38. People to appreciate the intelligence and virtues of animals.
39. And, generally, to make men, women, and children better, because more humane.—*Our Dumb Animals*

Summer Drinks.

At this season of the year the farmer and his laborers require some cooling but palatable beverage that will quench their thirst, and not heat or intoxicate their blood, yet will afford a grateful stimulant to their digestive powers. And among all the stimulating substances which are employed in making these drinks, there are none superior to ginger, and none more easily procured or equally refreshing. Almost every man likes it, and a mixture of it with maple sugar and water, or honey, or syrup and water, is an extemporized drink of which thousands partake with great relish, while some will add to it a teaspoonful of cream of tartar, and then stir in half a teaspoonful of saleratus or soda, and thus prepare a tumbler of foaming liquid, which is a wholesome tonic, as well as a palatable drink, for carbonic acid gas, which is formed by the fermentation, adds greatly to the pleasant taste of any drink.

It is also a good plan for every farmer's wife to make a keg of hop beer, and keep it upon tap during the haying and harvesting of the summer months. Spirituous liquors, containing alcohol, are not conducive to the health of any man; but the bitter tonic of hops, flavored with the essence of spruce, sassafras roots or wintergreen leaves, is always desirable.

Hop Beer.

Take a three quart kettle full of boiling water and add to it one quart of hop blossoms, or a small quantity of pressed hops; boil 20 minutes, adding anything you please for flavoring, and if nothing else can be had, three tablespoonfuls of powdered ginger will answer your purpose. Strain through a cloth or sieve into a jug or bucket, add to it three quarts of molasses; stir it until well mixed; then let it stand until milk warm, and add half a coffee cup of baker's yeast turned over a slice of toasted bread. Let it ferment over night. Next morning remove the scum, and if fermented in a bucket, bottle it and cork tightly; if in a jug, pour off the foam, and also cork tightly. Keep in the ice-house or cellar, so it will not sour quickly.

It is well on large farms to make a fifteen gallon keg of it, and let the men drink of it freely, and they will rarely care or ask for rum or whiskey, and when this evil can be done away, surely the housewife will not grudge the extra labor she incurs in preparing a beverage which will cheer but not intoxicate.

Ginger Beer.

This is also a very agreeable drink, and highly relished by ladies of weak digestive powers, as well as by strong laborers in the fields. Take four ounces of Raec ginger, well pounded, and three ounces of cream of tartar, and mix them well with five pounds of white or brown sugar, and six lemons sliced fine. Pour over this mixture five gallons of boiling water. Let it stand, after stirring it well, for twelve hours (it is well to mix it over night) and then add one teacupful of yeast; let it stand six hours, and then bottle, fastening the corks with strong wire.

It will be ready to use in two days, and will foam deliciously.

The bottles should be laid on their sides in an ice-house or cool cellar, so that they will not burst their corks. It can be made in a keg and kept on tap.

DAISY EYEBRIGHT

Earth Closets.

The most eminent physicians, I believe, agree that Asiatic cholera is contagious only through the excrements of patients afflicted with it. Fevers, and nearly all putrid diseases are spread and increased in their virulence in the same way. Vaults and cess-pools for privies, especially in cities and large towns, even when no virulent disease prevails, are incontrovertibly a nuisance, always prejudicial to general health, and as sure to breed disease as a manure heap is to bring forth weeds.

Your correspondent "Moses," a month or two since, gave some valuable suggestions and hints regarding this matter—bringing the advantages of the complicated earth closet that is doing so much for the

upper circle in society, within the reach of the "common people," who, I trust, will receive this earthy blessing gladly.

But I think this matter can be much more simplified, and thus become practically popular. Earth-dry dust—is a purifier, and it deodorizes any filthy or putrid matter that is covered by it. Sand will not do, neither will wet or lumpy soil. Pulverized charcoal is better than simple earth, but wood ashes or quick lime is bad—worse than no covering. Ashes from mineral coal are nearly as good as earth. Sifted dust from the street is just the thing, and street dirt or coal ashes will do without sifting, if enough is used. But something beside "earth closets" is needed. The want is a woodhouse commode and bedroom and chamber conveniences; and these are easily made, and their construction is so simple that almost any man can make them for his family needs.

For closet use, make or get second hand a box, say 12 to 14 inches square, and the height of a chair; swing one side or the cover by leather hinges as a door; make a suitable seat hole in one end; make a cover and hang it with leather or list; get at the tinner's a tin sap-bucket with bail added for 35 cents as a reception vessel; use some cast off tin vessel to hold the dust and an old cup or dipper to throw in immediately every time you use it, enough to cover all moisture; and, if you like, cover the box with carpeting or canvas. For the sick room or chamber, divide the box with a shelf that will admit a chamber vessel above it and a dust box or vessel below.

No bad odor arises after the dust is applied, and emptying the vessel is no more disagreeable than emptying pure dust.

Health, cleanliness, comfort, convenience, economy, all unite in using the dust indoors and abolishing the cesspool and vault.—ONE WHO HAS TRIED IT.

Of what trade are the bees? Comb-makers.

We all do more harm than we intend, and less good.

The greatest gift we can bestow on others is a good example.

The name of the man who sent the first postal card is Legion.

To keep the Indians quiet requires considerable Indian-annuity.

"Daughtercultural show" is the latest name for an evening party.

If you are out in a driving storm, don't attempt to hold the rains.

Governess to pupil: Where does tea come from? Naughty little boy: out of the tea-pot.

A Hoboken editor, being challenged, sent word in reply: When I want to die, I can shoot myself.

At a concert the other day one of the vocalists found her voice thick; she strained it, but without good effect.

That old frog, "closely imbedded in solid rock, 8 feet below the surface," has been dug up again, this time in Villanova, N. Y.

It takes years of careful training to convince a boy who is taken sick on a Saturday, that there is not a screw loose somewhere in the universe.

An up-town young lady, speaking of one her aversions, said the severest thing on record, "He's almost a perfect brute—he only lacks instinct."

A blind man who runs a lung-tester in New-York encourages patronage from the crowd by crying out: "Try it; it'll show which of yiz 'll die first."

There is a good deal of sound wisdom in the suggestion of the farmer: "If you want your boy to stay at home, don't bear too hard on the grindstone when he turns the crank.

"Why don't you go to sleep?" said a mother to her three year old daughter. "I am trying," she replied. "But you haven't shut your eyes." "Well, I can't help it; um come unbuttoned."

At a candy-pull recently the two-gallon pot full of blazing liquid was put out in the yard to cool, while the jolity went on inside. The cat's corpse was removed and the candy given to the poor.

There is said to be carried off from the soil nine-pounds of lime in twenty-five bushels of oats, and fifteen pounds in thirty-eight bushels of barley. There are thirty-five pounds of lime in two tons of rye grass, one hundred and twenty-six pounds in two tons of clover, and one hundred and forty pounds in twenty-five tons of turnips, and two hundred and seventy pounds in nine tons of potatoes. Some soils contains an abundance of lime for a thousand years, while others require an occasional application of lime as a fertilizer.

Advertisements.



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ESTABLISHED by the late Sannel Wagner, at Washington, D. C., in 1861, NOW PUBLISHED IN CHICAGO, ILL. EDITED BY REV. W. F. CLARKE, OF GUELPH, President of the North American Bee-Keepers' Society, and Ontario Bee-Keepers' Association. ISSUED MONTHLY, at \$2 A YEAR IN ADVANCE. Sample numbers sent on application. Canadian subscribers can send orders and remittances to W. F. CLARKE, Guelph. Subscribers in the U. S. will address, W. F. CLARKE, Chicago, Ill. July 21, 1872. 10 13

PUBLIC SALE OF THE NEW YORK MILLS HERD OF SHORT-HORNS.

In pursuance of a determination reached with great reluctance, but forced upon me by the demands upon my time of other interests and pursuits which it is impossible to neglect or curtail, I will offer at Public Auction, on Wednesday, September 10th, 1873, At 1 o'clock p.m., Without Reserve, my Entire Herd of Thorough bred SHORT-HORNED CATTLE Including representatives of many of the best known and most valuable families, and numbering Over One Hundred Animals. Catalogues may be obtained of the Auctioneer, Mr. JOHN R. PAGE, Sennett, Cayuga Co., N. Y., or of the undersigned. SAMUEL CAMPBELL, 4t-10-12 New York Mills, Oneida Co., N. Y.

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Advertisements.

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It is the best fertilizer now in use. Road testimonials from parties who used it last year:— LONDON TOWNSHIRE, 4th CONGRESS, } January 23, 1873. GENTLEMEN,—I have pleasure in reporting to you the improvement on my land by using the Bone Superphosphate. I gave it a trial on four acres of clay soil, that was completely run out and impoverished. I used the Bone Superphosphate on one lot, wood ashes on the second, and barnyard manure on the third, on young grass. The result was decidedly in favor of the Bone Superphosphate; so much so that I shall take a much larger quantity from you on the coming season. I am yours, &c., CHAS. PRIDDIS. LONDON, Ont., Jan. 21, 1873. GENTLEMEN,—Having used the Bone Superphosphate manufactured by the Western of Canada Oil Lands and Works Company, I can bear my testimony to its excellence as a good fertilizer. I tried it on grass land, celery, and also on the green-house plants. The result has surpassed my expectation, particularly on the celery plants. I can gladly recommend its use to any that have not already used it. I am, yours obediently, JOHN BARRON, Gardener to the Hon. John Carling. SPRING BANK, WESTMINSTER, } March 13, 1873. GENTLEMEN,—The ton of Superphosphate I purchased from you last season I applied to grass lands, and was well pleased with its effects, notwithstanding the very dry and unfavorable season. I am convinced of its being a valuable fertilizer. Yours truly, JOHN B. TAYLOR. LOT 5, CON. B., GORE ROAD, LONDON, ONT., } March 12, 1873. GENTLEMEN,—The bone Superphosphate I purchased from you last spring was used on "CORN." The yield was fully one third more where the bone Superphosphate was used, and was better in color and quality. I expect to derive equal benefit by using it on my wheat this spring. It is the best artificial manure I have ever seen. I am, yours respectfully, GEORGE PLAXTON. WESTMINSTER, Feb., 1873. GENTLEMEN,—I have used your Superphosphate on grass lawns and on green crops, flowers, &c., and found it very beneficial. As a fertilizer, there is no question it is the best known to science. Yours truly, W. Y. BRUNTON. Testimonials from other scientific and practical men will be inserted in next issue. The Superphosphate is put up in good barrels, containing about 225 pounds each. Price, \$40 per ton. It is also put up in bags containing 50 and 100 pounds each at the same price. No charge for bags or barrels. All orders will receive prompt attention. Address, WESTERN OF CANADA BONE SUPERPHOSPHATE WORKS. v-10-9-tf LONDON, ONT., CANADA.

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