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THE
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DEPARTMENTS.

THE FIELD.

GRASSES & FORAGE PLANTS.

IMPLEMENTS OF HUSBANDRY.

RURAL ARCHITECTURE.

THE DAIRY.

HORTICULTURE.

AGRICULTURAL CHEMISTRY.

EDITORIAL.

AGRICULTURAL INTELLIGENCE.

THE BREEDER & GRAZIER.

VETERINARY DEPARTMENT.

THE POULTRY YARD.

ENTOMOLOGY.

THE APIARY.

ILLUSTRATIONS.

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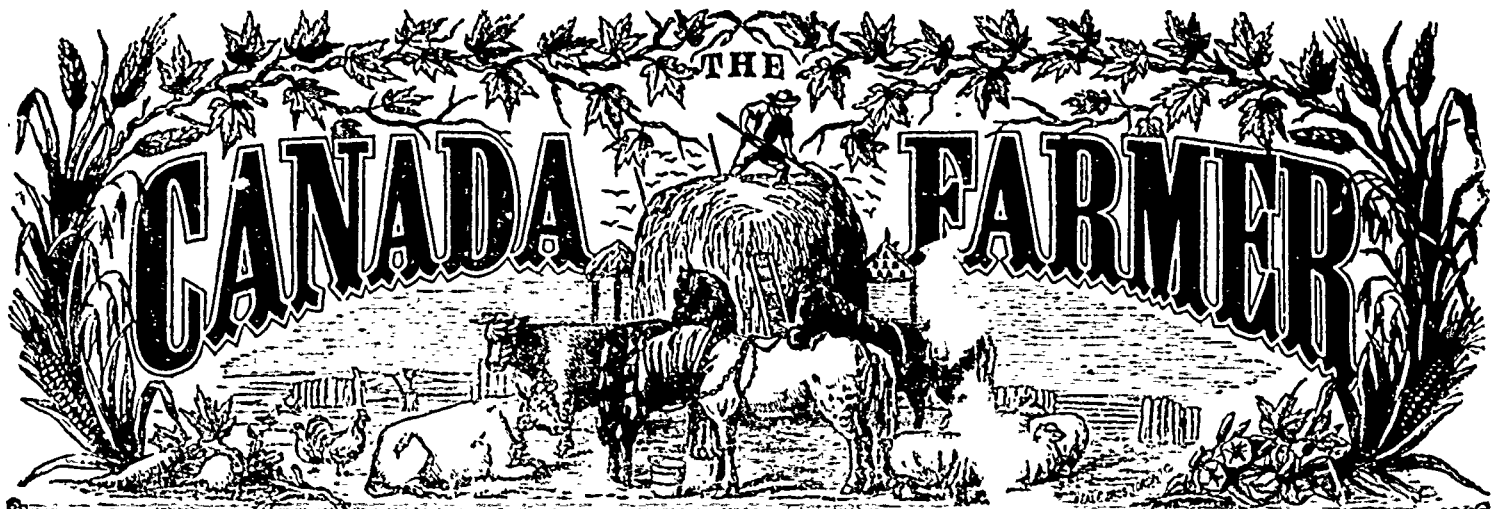
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The Field.

A Valuable, but Neglected Manure.

Both chemical analysis and actual experiment have demonstrated, over and over again, that human excrement is the richest and most potent of all manures, exceeding in its fertilizing properties the far-famed Peruvian guano. Yet, the only nations that have learnt how to utilize it in the operations of husbandry, are the half-civilized Chinese and Japanese. Their small fields, tilled wholly by hand, are maintained in high productiveness, and made to support a teeming population, by the conservation and use of a manure, which more enlightened countries, with a strange oversight of their true interest, allow to waste. Nor is this all. Not only is this valuable fertilizer wasted, but it is treated in so unwise a manner, that it is a constant source of annoyance and a frequent cause of disease. In town and country, the privy is a nuisance and a plague spot; an eye sore; a punishment to the olfactory; a pollution to the soil; and an endless occasion of trouble. Now it is full, and must either be emptied at a cost of much suffering, or a new receptacle dug, and the old one filled up, its contents being left gradually to soak into the soil, or to reek in the air. Anon, in the winter time, it is frozen up, necessitating an unpleasant job in thawing or chopping away the flinty mass of congealed filth. Neither economy, nor cleanliness, neither decency, nor comfort, have any place in the ordinary arrangements by which mankind dispose of their excrement.

Meantime, from every farm and field all over the land, comes a loud outcry for manure. Exhaustion has taken hold of once fertile soils, for want of manure. The meadows languish, the cattle grow lank, the grain crops are light, and the root cellars are but half-filled, all for want of manure. If, by some means, privies could be abolished on every farm, and their loathsome contents transformed into an inoffensive fertilizer, spread out upon the land; and if every village, town, and city were made in a similar manner, by municipal regulation, grand sources of manure supply to the surrounding country, a great want would be supplied, a great nuisance would be abated, and a great gain to public decency, comfort, and health would be secured.

Nothing is easier than to accomplish all this. Dry earth has the power of absorbing urine, crumbling down and assimilating hard fecal matter, and depriving both of all offensive odour. In other words, you have only to cover each deposit of human excrement with a small quantity of dry dirt, to secure its being speedily changed into dirt, the only result being that a rich fertilizing property is thus added to the soil so used. Dry earth may be used several times in this way, it is said as many as *ten times*, before its power of absorption and deodorization is exhausted

And when it can be used no more to absorb and deodorize, it is the most valuable manure that can be applied to land.

On the basis of this important fact, what is called the "Earth Closet" system, has been introduced in many places, with the best results. A mechanical contrivance for storing dry earth, and spreading it by the pull of a handle, over every deposit of excrement, has been patented. The originator of this plan is an English clergyman, the Rev. H. Moule, who has done much by his writings, and invention, to revolutionize the habits of society in regard to this matter. The mechanical contrivance just referred to is not costly. Ten or twelve dollars will pay for it. The wooden frame-work, and boxing, can be made by anyone who is handy with carpenters' tools. To have the "earth closet" system in the most complete, and convenient shape, it is no doubt advisable to get Mr. Moule's very simple and effective machinery. But there is also a "rough and ready" plan on which there is no patent, and which will only cost a little trouble. Any ordinary privy can easily be converted into an earth closet. All that is required, is to fill up and floor over the usual hole in the ground, providing space in the rear for the accumulation. It is best to have the floor a little higher than the adjacent ground level, so as to preserve the material from all drainage, or in-coming moisture. A spacious box, accessible at the rear, for occasional mixing, and emptying, is all that is needed. A box of dry earth with a scoop, or small shovel for spreading, must be added, and the arrangements are complete.

Any kind of soil, except light sand, or gravel, will do, though clay, with enough sand in it to prevent caking, is best. The dirt must be sifted, as the finer it is, the better it works. It will dry sufficiently in an open shed, during warm summer weather, but it can be more thoroughly dried at any period of the year, in an oven, furnace, or under a hot stove. If soil can be got at, as it usually can in some way, the establishment of an earth closet, can be made a winter job. Any quantity of earth can be dried in a shallow box, placed under the cooking-stove. Can any of our readers devise a more useful winter job than this? "A word to the wise is enough."

Better Farming.

My text is *better farming*. My brother farmers will say, why not advocate *good farming*? First, because I wish to advocate what is practically within the reach of every farmer, no matter what his situation. He need not wait until next month or another year, or for more means, or something to turn up—but may commence to-day to farm better. Good farming generally is in the far distant future; it is a work of years. We need not give ourselves any trouble about good farming; if we only persist in *better farming*, we shall arrive most certainly at that in time.

One great reason why we do not have better farming, is, because farmers are satisfied with measuring themselves by themselves, and comparing

themselves among their neighbors, they do not go forward. I should like to write what would make farmers dissatisfied, not with farming, but with the manner in which they are farming. A farmer who is satisfied is of no benefit to the farming community by his example. When a man is satisfied we need not look for improvement. I would say, for the encouragement of those who desire to become good farmers, that by being *better* farmers is the only way to attain to the high position of *good* farmers. To those who do not, I have nothing to say, as they are not worth talking to as farmers; they may be as good men as there are in the world, but as farmers they are of *no good* to the cause.

I wish to tell my brother farmers that there is no mean calling, but a high one and worthy of as good talent as there is in the land. Much is said about low prices; they are a certain indication of high ones; none but the good farmer will receive the full benefit of them, and the others in proportion as they have farmed better. Much is said about high wages, increasing family expenses; they will never be any less or wages any lower. All that can be done is to farm better, raise better crops, better beef, better pork, better mutton, and in this way get better prices and by so doing be enabled to meet these increasing expenses. Then let our motto be, *farm better and go forward*, that others seeing our good works may become dissatisfied with present attainments and stimulated with a desire for improvement. I am not a good farmer myself, but I wish to become one. There are weeds to kill, draining to be done, stones to be made into wall; I might have better sheep, better cows, better horses, take better care of them, feed them better. Above all, if you wish to farm better, do not let your farm, thinking to get some one else to do it for you, you will certainly be disappointed. — *Cor. Country Gentleman.*

Hedges for Cold Climates.

In the *Farmer's Advocate* is a prize essay on hedges, in which the writer recommends the honey locust, *Gleditsia triacanthus*, as a hedge plant for northern localities. He is—"Convinced from experience and observation that for a hedge plant suitable to the requirements of Canada, there is none superior to the honey locust. The following are a few of its superior qualities:

"1. That it will stand the severest winters of this latitude uninjured. 2. There is no hedge plant that will grow with us and make a hedge in so short a time. 3. When it once becomes a fence, it will with little care remain so, not like some plants, in which, when kept constantly pruned, the lower branches die out, and thus make an ineffectual hedge. Some may imagine it to be only the common locust growing here as an ornamental tree. It belongs, in fact, to a family of plants which do not sprout, and upon which the borer never works. The red bud and Kentucky coffee tree belong to the same order as the so-called honey locust. There is a honey locust hedge at Elizabethtown, New-Jersey, over forty years old. It is one mile in length and has always been tight and strong, and it is at this time known to be the best hedge on the continent. The hedges of J. L. Budd, of Benton County, Iowa, some four miles in length, are also beautiful, symmetrical and a perfect protection against all farm stock. I mention these two instances because the one is in the rich prairie of the West and the other in the sterile soil of the East."

Profit of Good Crops.

Now, I like to say to a young farmer - It is little use for you and I to try to advance prices. We shall have to take what we can get. Fortunately, there are a good many men willing to try to make a living by buying and selling. There is competition enough, as a rule, to secure us, taking one year with another, all that our articles are worth. Our business is to raise the best article at the least cost. Take such a simple crop as potatoes. I heard a farmer say the other day, that no money could be made by raising potatoes at 50 cents a bushel. It never seemed to occur to him that if he raised 200 bushels per acre, instead of 100 bushels, that he could make more actual profit from one acre than from five. One of our Rochester nurserymen raised a crop of white wheat this year that yielded 49 bushels per acre, while the average of the county would not be over 10 bushels per acre, of red and white wheat together. The millers would pay from 15 to 20 cents per bushel more for this choice white wheat than for ordinary red wheat, and this, in itself, is a good profit. The ordinary crop of red wheat, of 10 bushels per acre would be worth \$16, while the 49 bushel crop of white wheat would sell for \$75. If the crop of red wheat affords any profit, how much would the crop of white wheat afford? Figure the interest and taxes on the land, the cost of plowing, harrowing, drilling, seed, reaping, harvesting, and threshing—*Harris Walks and Talks.*

Large Crop of Sweet Potatoes, and Mode of Cultivation.

Col. William Alderman, of Cumberland County, N. C., raised the past season, on one acre of land, 722 bushels of sweet potatoes, and gives the following as his method of cultivating them:—

"The land is a sandy soil with clay subsoil; broke up hill in March, and again 1st of June. Laid off rows 2½ feet apart, running twice in the same row; then put out thirty one-horse loads of stable manure in this furrow; then put two furrows on the manure and planted out the sprouts, (or draws, as they are sometimes called).

"When the vines commenced running, I turned every other row, and split out the middles with a good turning plough, then turned the vines back and ploughed out the other middles. Did not use a hoe in cultivating.

"The cost of production was as follows: 6 days ploughing, \$9; 30 one-horse loads manure, \$30; hauling out manure, \$7.50; 8 bushels slips, \$8; setting out sprouts, \$8.50, total, \$54.

LARGE YIELD OF TURNIPS.—In the Derbyshire (Eng.) Prize Farm competition, the judges report that Mrs. Adcock, who took the second prize, had received a prize in a previous year for a crop of twenty-eight tons of Swedes to the acre. They were manured in the drill, at the time of sowing the seed, with a patent turnip manure, at the rate of six cwt. per acre. The farm is a strong loam on marl.

COST OF CROPS.—A Delaware County (O.) correspondent of the *Rural New Yorker* estimates the cost of growing the different crops on land worth \$60 per acre to be—Corn, 80 bushels per acre, 20c. per bushel; 60 bushels per acre, 25c.; 40 bushels per acre, 31c. to 33c.; 30 bushels per acre, 37c. to 40c.; wheat, average cost, \$1 per bushel, oats at least 30c. at 30 bushels per acre; potatoes, at 100 bushels per acre, 20c. These estimates include manure, ploughing, harrowing, drilling or planting, thorough good cultivation, and the stalks and straw of corn and grains to pay for husking or threshing, and \$5 per acre for interest and taxes on land.

SAWDUST.—I have used sawdust for four years as bedding for horses, cattle and hogs, and think it pays me. I have to draw it only one mile; draw 75 bushels at a load, drive in on the threshing floor, and put it in a room in the basement; so it costs but little to get it, but it pays in three ways—first, as bedding, and I had rather have it than straw in summer, and winter if in warm stables. For hogs, there is nothing that will keep them so clean, and seems to agree with them so well, as the young ones have a play every time I clean the old out of the pen and put in new. In winter the hogs have straw extra, but none in summer. In the summer my horses have five or six inches to stand on, and then I am not so particular about its being dry. Second, to absorb liquid, and third, to loosen up heavy soil with, it is certainly a benefit, but I do not think it enriches the soil much. There is no danger of its souring, if no more is used than is necessary for bedding purposes.—*Cor. Country Gentleman.*

Veterinary Department.

Influenza in Horses—General Treatment.

In a former number, we briefly alluded to this disease, which has been prevalent for the past two months. We shall now point out the general treatment which ought to be pursued. As a matter of course, the treatment must be necessarily varied according to the organs that are principally affected. In all cases, however, it is desirable that the strength of the patient should be supported through the disease, so as to enable nature to throw out the morbid material in the blood. Therefore, we cannot too strongly recommend good nursing, and placing the patient in a comfortable situation, where he is allowed to breathe pure air. The body should also be well clothed, and the legs either well hand-rubbed, or bandaged. Various medicinal remedies are found of benefit, and those especially of a stimulating nature, as the carbonate of ammonia given in one to two drachm doses twice or thrice a day; or the liquor acetate of ammonia in two ounce doses three or four times a day. The preparations of potash in many cases are useful, as the iodide of potassium, chlorate of potash, or nitrate of potash. When the bowels are costive, enemias of soap and water may be had recourse to once a day. In this disease, it is seldom advisable to give strong purgatives, or to follow any depressing course of treatment. Where, what is sometimes called the *heroic treatment* of the old schools, such as bleeding, purging, and other reducing remedies is pursued, the results are very often alarming, and we have no hesitation in stating that many valuable animals are lost through this method of treatment.

When the appetite completely fails, endeavors must be made to support the animal by the careful use of gruel, beer, whiskey or wine; and where nature is thus assisted some very hopeless looking cases may be brought to a favorable termination. During the period of convalescence very great benefit is derived from the use of tonics, as some of the preparations of iron, and at the same time feeding the patient on a nourishing diet, and keeping him clean and comfortable. A horse that has suffered from a severe attack of influenza must be carefully used after being put to work, as frequently the lungs are weakened, and any severe exertion, or exposure to cold, is apt to be followed by congestion of these organs. When the disease breaks out in a large stable of horses, the sick horses should be removed from the healthy ones, and the stable well cleansed and disinfected.

We have merely pointed out the general treatment in the ordinary run of cases; in all severe and alarming cases, a competent veterinary practitioner should be consulted.

Horse-Shoeing.

HORSE-SHOEING AS IT IS, AND AS IT SHOULD BE. By William Douglas, (late) 10th Royal Hussars. Murray.—"Pull up that nasty asphalt pavement at once, and let us have no more of it!" This is the cry of a host of unthinking people, when they see horses stumbling and slipping, and falling in every direction upon the best material that has ever yet been discovered for ease and comfort in riding or driving, and for quiet travelling. It never strikes the host of wisacres, who thus inconsiderately denounce what is new, that horses "come to grief" quite as frequently upon the granite and MacAdam paving of our streets, as well as upon our country highways and byways, as ever they do upon asphalt; but even if it were not so, they never so much as suppose for a moment that they are altogether "putting the saddle on the wrong horse." It is the farrier—not the paving—that is wholly in fault, for he sticks to the old-fashioned system of years after years past, and is as stupid, ignorant, and perverse as were his father and grandfather before him. Then there is the Farrier's Union to contend against; the well-paid and non-working members of which, on no account, will

permit a better system of horse-shoeing to begin, for their cry is as loud as that of "Great is Diana of the Ephosians," since their "craft" would be endangered were common sense and a knowledge of the anatomy of a horse's foot to gain a mastery, so much to be desired, and, as we fear, so little likely to be accomplished. However, we now positively know the rights of the matter by what Mr. Douglas tells us in his invaluable book—a book which ought to be in the hands, and its contents in the memory, of every gentleman, stud-master, and keeper of horses throughout the length and breadth of the Kingdom. Earnestly do we recommend the largest circulation it can obtain, since it is, without the smallest question, the very best manual upon the subject that has yet fallen under our notice and consideration.—*Bell's Messenger.*

Winter Bridle Bit.

We find the following, floating among our exchanges without credit:

Now that harness makers and dealers are laying in a stock of goods suitable for winter use, they should not forget to provide themselves with an ample supply of winter bits. By these we mean those which are so constructed as to prevent injury or pain from the frosted metal. The all-leather mouth-piece is a popular bit, but many object to it because of the check pieces or rings drawing against the horse's cheek, owing to the flexibility of the leather; others complain of it on account of its liability to break if a heavy strain is put upon it after being in use a few months.

The first difficulty can be removed by using a small, stiff iron mouth piece covering it with leather, when this is done the covering should be chamfered and stitched in the same manner as in making round reins; to prevent the leather slipping on the mouth-piece the ends should be passed through the rings around the eyes.

Where the flexible mouth is not objectionable, but increased strength is required, a good bit may be made by using the usual check-rings and connecting them by two annealed wires, twisting the ends well in order to prevent their straightening out, and making the leather mouth in the usual way, but placing the wires on either side of the centre seam; this will make a strong bit, and one that any harness maker can construct; small-leather washers should be placed between the ends of the mouth-piece and the check rings. India rubber is also used for coverings to iron mouth pieces; hollow tubes of soft rubber are slipped over the mouth-piece before the rings are secured. The well known hard rubber, such as is used on harness mountings, is also used as a covering to mouth-pieces, and is as perfect a protection from injury to the horse from frost as leather, and being less cumbersome, and also adapted to Summer use as well, is preferred by many as a covering.

The Sheep Maggot.

Shepherding in England requires a careful counting twice every day, more particularly in July and August, for the black beetles there strike the same as the fly; and the maggots are striped along the back with a black mark; they are so large and voracious that they soon get into the poor sheep's inside and cause instant death. In showery and sultry weather, in summer, the beetle will strike in any damp place in the wool, especially if soiled with the sheep's own dung or by lying down on cow's droppings.

A shepherd becomes practised so that he can detect the place where "fly blown" or blown fly beetles, before maggots have begun to worry the sheep; and, by applying some lotion, (mercury water,) which he generally carries in his pocket, when the animals are in many fields, as they generally are, the evil is checked at once; but when an oversight has given time for the maggots to begin gnawing at the skin, the animal struck will be very uneasy, lying down and rising again directly, running fast some steps and then stamping; and if it has sought some private corner, or other place out of sight, it has become sick from the continued worry, and the shepherd finds it as soon as, on counting, one is seen to be missing.

However the shepherd feels himself disgraced when the maggots are allowed to get this headway before being discovered; hence, every careful shepherd will, with the assistance of his dog, trail the flock in every field, steadily along, so that he can look closely into the wool on each sheep as they file past him or as he slowly goes by them; and after viewing one side, he goes round and examines the other; or when he has a first-class dog, that sagacious creature will make the whole number lengthen out so that they can be clearly looked all over in a few minutes.—*Cor. Rural New Yorker.*

Agricultural Implements.

The "Ditcher."

Perhaps there is no branch of tillage so much neglected in this country as drainage, and certainly there is none of greater importance where it is needed. Water should be allowed neither to remain too long on the surface of the soil, nor to run too swiftly off it. In the first case it becomes stagnant, doing positive injury, whilst in the second, the reaction from a more surface-wetting tends only still further to dry the soil. Water should, on the contrary, percolate through the ground, giving it a thorough moistening to a proper depth, and then be removed, it would thus impart to vegetable life the valuable properties it contains. This is the function of successful drainage, to appropriate to the soil all the fertilizing elements of air and cloud, heat, carbonic acid, oxygen and ammonia, by opening the pores of the earth to receive these disintegrators and fertilizers, and to yield its latent nutriment. And not only so, but also to remove from the soil everything that is deleterious to the growth of plants. The means for accomplishing these important ends, have not hitherto been within reach of the ordinary farmer in this country; and, thus being the case, the neglect is not much to be wondered at, for drainage, solely by pick and spade, is, of all operations on the farm, the one most abhorrent to civilized humanity. In England drainage has worked a revolution in farming, and in Holland large tracts of land have, by the same means, been reclaimed from the sea, and made the richest in the world.

Such might also prove the case with thousands of acres throughout Canada, which constitute otherwise a mass of marsh land. One of the first inquiries connected with this subject is "what kinds of land require draining?" and the answer, in general terms, might be stated as follows, viz: "All lands which, at some seasons of the year become covered with water which has no natural outlet, but remains on or near the surface until removed by evaporation." And again, when a ploughed field shows on its surface a constant appearance of dampness, indicating that water is being forced up from below, so that after a rain-fall it is much longer than other lands in assuming the appearance of dry earth, that field, undoubtedly, needs draining.

Soils, too, which, in dry weather, present fissures, or cracks all over the surface, caused by the drying of clays, which, by previous soaking, have become pacted together, come under the same category, and when corn is seen to curl, showing that in its early growth that it has been prevented by a wet subsoil from sending down its roots below the reach of solar heat, it is a sure indication that draining would prove of service there.

Now, what is the object of drainage? It is to accelerate filtration in such soils as we have been describing, and to impart to them the mellowness and dark color of self-drained land, conditions which are the most favorable for the growth of plants.

In a saturated or soaking, wet soil, every space between the particles is filled with water to the entire exclusion of the atmosphere, and hence only aquatic plants will grow on it.

In a soil which is too dry, again, where the earth seems baked, almost as in an oven, nothing will thrive except those plants which ask of it simply an anchoring place, and seek their sustenance from the atmosphere, in other words, air plants.

But agriculture is directed to the production of a class of plants very different from either of these, and requiring, to some extent, the conditions of both. Whilst they must have heat, they cannot dispense with moisture; and whilst they require moisture they cannot abide the exclusion of air.

Plants receive a large portion of their nutriment

through their roots, from the soil. The raw materials, from which it is derived, are minerals, manures (artificial), water, and certain substances taken from the air by the absorptive action of the soil, or taken from rain, or from water flowing over the soil from other lands. Of manures, those of a mineral nature are affected by drainage in the same manner as mineral is native to the soil, whilst those of an organic character absolutely require fresh supplies of air to continue the decomposition, which alone prepares them for their proper effect on vegetation. Soil, of itself, has no chemical action in the process of germination; it is simply the vehicle by means of which air, moisture, and heat can be kept up. It absorbs moisture from the atmosphere, heat from the sun, and it admits air to circulate freely amongst the roots to supply them with their proper food. Now, the secret to be learned is, how to adapt the soil to the furtherance of these conditions. Under drainage will do this in the hardest, most obstinate, and most retentive of clayey soils. It decomposes the mineral matters contained in them, disintegrates the particles,

plumbed by air primed with solar heat; and again, evaporation, which is a terrible soil-cooler, cannot take place because there can be no accumulation to evaporate.

2nd. Under drainage prevents land from becoming either too wet, or too dry to produce good crops. It prevents wetness, because where it is present there can be no accumulation, and too much dryness, because of the much larger quantity of dew which it is enabled to absorb from its mellow condition. In fact, drained land, generally speaking, contains enough moisture in its pores to effectually prevent drought. At a meeting held in Albany, N. Y., in 1855, to discuss the great drought of the preceding year, a Mr. Harris, present, who had tested the matter practically, said that "a drained soil will be found damper than an undrained one, and the thermometer shows a drained soil to be warmer in cold weather, and cooler in hot weather than one which is undrained."

3rd. Under drainage causes a more even distribution of nutritious matter amongst the roots; renders



and renders them porous. This can be easily illustrated. Take a common box, with holes in the bottom; fill it with earth of the most tenacious character, and pour water upon it. It will be found in a short time that the water has soaked down through it, and is pouring out at the bottom. Continue the process, and each successive time the percolation takes place more readily, rendering the contents quite mellow and porous, and so long as there is a free outlet at the bottom, the earth will thus receive all the water that falls upon it, extract its fertilizing properties, and run no danger of being over-drenched.

Now, observe the high importance of having these conditions present in the soil for the utilization of rain. Rain water is the rightful property of the soil on which it falls, and it constitutes the chief source, not only of moisture, but also of fertility, it being calculated that a rain fall of 24 inches per annum has a fertilizing influence equal to the quantity of ammonia contained in 200 cwts. of Peruvian guano, with 150 lbs. of nitrogenous matter besides.

Rain water contains in solution air, carbonic acid and ammonia, the first two the most powerful disintegrators of the soil, and the last an equally powerful manure. The chemical action of these ingredients is such as to enable the soil to give up its hidden treasures; but before these latter can become effective for the nourishment of plants they must be rendered soluble, and this is only effected by the free and renewed access of water. The soil is in its most profitable condition when it is mellow, porous, moist, and moderately warm, and all these conditions are attained by drainage.

1st. Under drainage raises the temperature of the soil by the admission of heated air, and by diminishing evaporation. There can be no such thing as a vacuum in the soil; for, as soon as the water runs off from between the particles, its place is at once sup-

plumbed by air primed with solar heat, thereby lengthening the season, and assuring the maturity of the crop.

4th. It enables the farmer to work his land sooner after rains; prevents the soil from baking and cracking, and renders it easier to work, and most undoubtedly pays well.

We indicated, near the beginning of this article, that drainage is perhaps the last job any farmer would care about undertaking manually, however important it might prove. We do not wonder at this, but the "Ditcher," an implement of but recent date, and one quite available all over Canada, obviates altogether the necessity of hand labor. The accompanying cut illustrates it probably much better than we could describe its structure. It is simple, strong, and not very liable to get out of order, and its price is not beyond the ability of most of our farmers.

With proper management, a team of four horses and two men, should cut a ditch with it from 1,000 to 1,500 yards long, 3 feet deep, 14 inches at the top, and 10 at the bottom, in ten hours, according to the character of the soil.

Its principal parts are an iron wheel four feet in diameter, eight inches wide, with two flanges of five inches in width projecting from its edges. Between the flanges, on the periphery of the wheel, are cogs, corresponding in length to the width of the flanges, and arranged in couplets, at distances twelve inches apart, around the wheel. In the rear, and close to the bottom of the wheel, is a spade or cutter, set in such a manner as to cut the earth, and hold it within the flanges. As the wheel revolves, the earth is caught by the cogs and carried to the top, where the cogs pass through a comb, which entirely removes the earth, and discharges it through a polished steel spout, which deposits it at a convenient distance from the trench, to be replaced when required.

The whole is connected with a car, upon which

stands the driver, who manages the machine and regulates the cutter with as much ease as he could that of a reaper. The machine is drawn forward and backward in the same track, cutting each time from 2 to 5 inches, until the required depth is attained.

CARE OF TOOLS.—If farmers will examine their tools at this season of the year, they will doubtless find that hired men have brought in ploughs, harrows, and hand tools, and housed them without thorough cleaning. Take the first opportunity to clean them and polish the metallic parts bright, rubbing them afterwards with a little beeswax, grafting wax or similar substance, to protect the surface and prevent rusting. The wooden part of all tools and implements which are at any time exposed to the weather, will last many times longer if well impregnated with oil. The best as well as the cheapest, is crude petroleum, as it penetrates the pores and makes perishable wood like the most durable cedar. In cool weather it will be necessary to warm or heat it to as high a temperature as will be safe before applying, so that it may enter the pores of the wood. With all the smaller tools, such as hoes, spades, rakes, &c., the work may be done in a warm room.—*Country Gentleman.*

DRAWING SCREWS.—Few things, says an exchange, are more vexatious than obstinate screws which refuse to move, much less to be drawn out, and in the struggle against screw driver power, suffer the loss of their heads, like conscientious martyrs, rather than take a single half turn backward from the course they have followed, and from the position they have been forced into. Like obstinate children, they must be coaxed, or tapped pretty hard on the head, according to circumstance; in fact, whoever has a tight, obstinate screw to "draw out," must keep his temper down and his resolution up quite as much to the sticking point as the screw does. If the screw is turned into iron and not very rusty, it is only necessary to clear the head with the wedge of the driver, and let a few drops of oil penetrate to the threads; but, finding that excessive heat or rust has almost fixed the screws immutable, then heat, either by placing a piece of hot iron upon it, or directing the flame of the blow pipe upon the head, and, after applying a little oil, turn out gently; but care must be taken not to let the tool slip so as to damage the notch. If, however, the screw refuses to come out, try to force it back with a blunt chisel, smartly but carefully tapped with a light hammer, but if evidently nothing can dislodge the enemy it is best to cut the head away and drill out the screw. When an obstinate screw happens to be in wood, merely give it a few taps on the head, but if in that heat it with a piece of hot iron, when it may be easily turned.

POTATO PLOW.—The *Mark Lane Express* has the following on one of the implements exhibited before the Royal Agricultural Society:—"Corbett & Peck's plow has a single mold board, and has a revolving disc composed of several teeth or tines, which by a simple attachment is fixed to the handles of the plow, and works just behind the mold board, catching the furrow as it is moved by the plow, and tearing it in pieces. As it is fixed to work on an angle to the mold board and to the furrow, the point is deposited on the surface of the pulverized land, and very few fall into the furrow sole, where they would be covered by the next ridge unless gathered immediately after the plow. By this single mold board two-thirds, or nearly all the ridge is turned over and broken up on the mold board side, and the furrow sole left has scarcely a single potato in it. The revolving disc, acting on the whole furrow, at once produced a fine level and broad bed for the potatoes to fall upon. This plow was put to work up in Regent potatoes, the tops of which were ripe, and made capital work. A few potatoes were buried by the mold thrown up by the disc, but there was no scratching at all for the gatherers, and they could gather much more rapidly than after the ordinary plow used in the district. A great merit of this principle is that it is adaptable to any ordinary plow at the cost of £3. The plow with a rotary disc is here shown as one implement, but virtually the invention consists in an apparatus to be attached to a plow, and forming part of its fittings or furniture, like the share or the coulter, but only to be used for special purposes. It will, however, pulverize land winter plowed in ridges, or at the time of plowing, most efficiently."

Breeder and Grazier.

Winter Care of Stock.

It cannot be too often or too earnestly insisted on that shelter and warmth, are essential to the well-being of farm animals during the winter time. Both humanity and self-interest urge this. It is disgraceful to a civilized, not to say Christian country, that so much suffering should be inflicted on poor dumb animals by exposure to the inclement weather, as we are often compelled to witness. Who that has travelled along any country highway, on a cold winter's day, has not seen shivering creatures trying to get partial shelter, and under the lee of a friendly fence, or standing with their backs to the storm, shivering it out as best they may?

Less food will keep stock in good condition if they are comfortably housed. The too common plan of foddering-out-of-doors, distributing hay and straw here and there on the ground, is doubly wasteful. Much of it is trampled under foot, and what is eaten, does the animals far less good than if they got it indoors.

"On the distant prairie" where timber is scarce, and lumber sells at fabulous prices, there may be some excuse for leaving cattle unhoused, but there is none in a well timbered country like this. A rude shelter is better than none. Log-sheds chinked up and covered with slabs or straw are like "good words";—they are "worth much and cost little." But any farmer, possessed of energy, can do better than resort to mere make shift contrivances for sheltering and housing his animals. Or if he resort to these, it will be temporarily, until he can do something more worthy of being permanent. However it is done, let there be no failure in this respect, for neglect here is the most "penny-wise, pound-foolish" policy that can be imagined.

Winter Feed for Sheep.

From a recently published paper on the above subject, by J. J. Mechi, we extract the following items of interest to breeders:—

"The proper qualities, quantities and admixture of food have much to do with the health and progress of animals. The nitrogenous and carbonaceous should bear due relation to each other. Food may be too rich, too poor, too nitrogenous, too glutinous, too laxative, or too astringent. Clean wheat will kill a horse if fed alone, but if fed with the chaff and straw in which it grows, it is healthy. He seldom loses a lamb or ewe in parturition, for they are fed on the mixed principle. He carefully avoids mangolds before lambing, and feeds sparingly of turnips. He rarely gives roots to his breeding animals before parturition: they contain so much common salt, potash and soda. Twenty-eight pounds of turnips, with their tops on, contain $\frac{1}{2}$ oz. of common salt, the same quantity of mangolds, with the tops, contain $1\frac{1}{2}$ oz. of salt; both have also a large quantity of potash and soda. He quotes Mr. Robinson, a noted veterinary surgeon, as saying, that when breeding ewes are fed large quantities of turnips, abortion is apt to result. This applies with greater force to mangolds. Mr. M. feeds at all times mixed food, keeping sheep and lambs both fat; selling his lambs this year at 12 months old for 73 shillings each. They are cross bred Lincolns and Down sheep. He closes with the pithy remark that 'Fat sheep make fat crops.'"

The Curry-comb and Brush.

Many stables are innocent of these things, and the occupants of them never get a rub-down except when there is something dirty to rub off. Are farmers generally aware that a curry-comb costs but ten or fifteen cents, and that its use on a horse or cow daily, not only improves the animal's looks, but its condition as well? By loosening the hide, opening the pores, dislodging insects, dandruff and dirt, great benefit is done. Moreover the use of these things carefully and judiciously, helps to render animals more docile and manageable, to foster

acquaintance with them, and secure influence over them. All rough, harsh use of the curry-comb should be avoided. Some animals are sensitive in the skin, and must be curried very gently. Others, like some human beings, are ticklish in certain places, and must be treated accordingly, kind tones as well as gentle motives must be employed. The tempers of dumb brutes, as well as those of human beings, can be improved or spoiled by good or bad usage. The curry-comb and brush may be made most useful in securing attachment, and grateful, kindly tempers, in addition to health and polish of appearance. Therefore, let no day pass without bringing them into busy requisition.

Clean Stables.

Cleanliness is as necessary to the health and comfort of the inferior creation, as it is to the health and comfort of man himself. Hence all stables where animals are housed, should be kept scrupulously clean, not only by the removal of droppings daily, but by the use of absorbents and deodorizers, such as dry swamp muck, gypsum, sawdust, and chaff. The strong smell pervading many stables is an unfailing index of neglect. How can animals enjoy sound health, if condemned to breathe foul, impure air? Besides this consideration, there is the important one of economizing and preserving every fertilizing material, whether solid, liquid, or gaseous, for future application to the land. These substances are too precious to waste any of them. The escape of odor is a proclamation of waste, and should at once be heeded, and effectually guarded against.

A Good Jersey Cow.

The Jerseys are working their way into favor as family pets and butter cows. They are accustomed to kind treatment and plenty of food in their native island, and their true place seems to be in the village and its suburbs, or places where but one or two cows are kept, rather than upon the farm in large herds. A small fifteen-sixteenth grade heifer, sold two years ago from Poquonnoc Farm, has made a remarkable record. She is one of the smoky-fawn animals, with dark points, now in fashion, whose comeliness is thought by some to damage the milking qualities of the breed. Since she came into the hands of her present proprietor, she has had the run of a good pasture in summer, and some extra feed in the stable. The present season, at four years old, she is making over two pounds of butter a day, of the finest quality, such as is very properly called gilt-edged, and would sell at \$1 a pound in the city markets. She would be called a handsome cow of any breed, and yet her beauty does not seem to be incompatible with rich milk and plenty of it.

Another Virgin Milker.

Bell's Messenger, London, Dec. 1st, copies from the *Country Gentleman*, the account of Mr. Parke's milk-giving Jersey heifer that had never been bred, and adds:—

"This Transatlantic story of Jersey precocity has its corroborative similes in the Short-horn history of the Old World. One of them came under our own observation some years since. Nosegay (Herd Book xiii., p. 474), a red and white Nonpareil heifer by the late Mr. Richard Booth's Duke of Buckingham (1-128), was calved on the 24th of May, 1857, and, in the summer of 1858, although up to that time her companions had been all of her own sex, began to make a display of dairy properties. As the season was hot, and 'garget' rife among the dairy cows of the district, it was thought necessary to draw her udder daily to relieve and cool the system. The repetition of this process developed in time the milking resources, and for some weeks the heifer gave from half a pint to a pint of milk each day, as much as her owner cared to have taken from her. There was every reason to believe that a much larger yield might have been induced. Nosegay never bred, and on being slaughtered at an early age was found to be malformed, or sexually deficient, as is often the case in 'freemartin' heifers. She was not a twin."

Rural Architecture.

Designs for Barns—(Continued.)

Design II.—Sheep Barns.

The accompanying figures show the construction of a sheep barn, on the farm of Hon. George Geddes, near Syracuse, N. Y. Its chief merit, beside that of convenience, is simplicity. The upper part, which holds the hay, has no divisions, or hay shoots, and is filled by the use of the horse-fork, with great rapidity. The barn, which was made many years ago, is 20 by 80 feet, with the improved facilities for filling, Mr. Geddes would prefer to have 30 by 80 feet, and higher, for a greater amount of fodder; and the basement, where the sheep are fed, being larger, would hold a greater number.

On the approach of winter, when foddering the

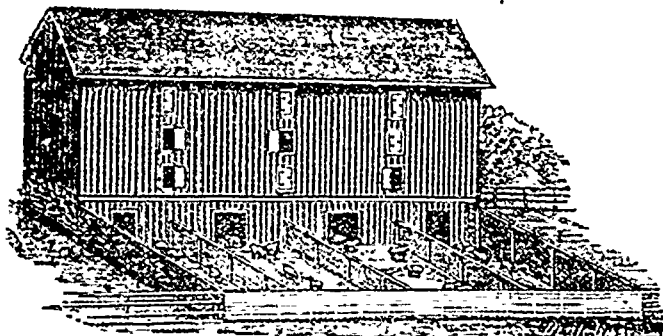


Fig. 1.—Sheep-Barn and Yards.

sheep, and enclosing them under shelter are commenced, a man enters the hay loft at one of the upper doors, and with a hay knife commences cutting an opening through the hay, downwards, opposite these windows, until he reaches the level of the floor on which the hay rests, throwing the hay on either side, or outside, with a fork. This opening is three or four feet wide, and extends across the bay. It is commenced at one side like a well, and afterwards the hay from the rest of the opening thrown down through it. Immediately under this opening there

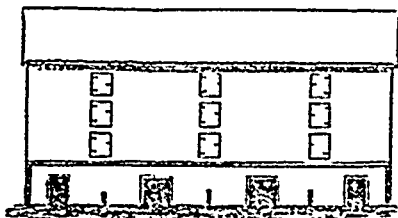


Fig. 2.—Elevation.

is a space in the floor, for throwing down the hay to the sheep; it falls at once into the double feeding racks below, which extend across the basement under the opening.

The basement is divided into four parts, or pens, which are entered by the sheep through the wide

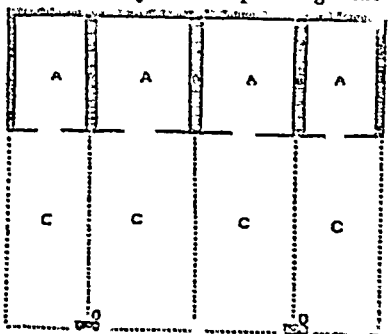


Fig. 3.—Basement and Yards.

A A A A, apartments in basement—B B B B, double feeding racks—C C C C, yards—D D, water troughs.

The two middle apartments have feeding racks on both sides—the end ones only on one side. Fig. 3 shows these apartments. The bars of the racks are two inches

apart, and about two feet long, and diverge slightly upwards. A small trough, a few inches wide, projects from the bottom of the racks, for feeding grain, or meal. Fig. 4 is a section of the racks.

The fodder with which the sheep are fed is well-cured clover.

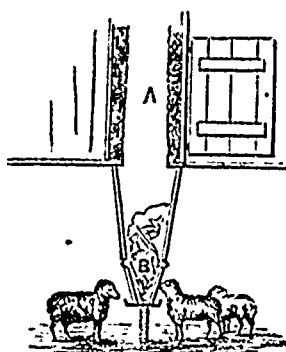


Fig. 4.—Cross Section.

Cross-section of feeding racks, and of cut in bay above—A, cut or opening made in hay—B, double racks between apartment, or, which keeps them in excellent condition, and their manure is of the richest kind.

Outside the basement, a yard is attached to each of the apartment of the basement, for the run of the animals, and water is supplied from a spring, brought through pipes. Altogether these animals had, at the time visited (depth of winter), a very plump, comfortable appearance, and looked as if they appreciated at least, in some degree, the many provisions made for their enjoyment.

It will be observed that a few minutes are sufficient to feed with hay all the sheep in the four pens, by throwing it from the bay above, immediately into the racks where it is wanted. The openings cut into the settled hay for this purpose, as already described, are more easily made, and with smoother faces, after it has become compact towards winter, and when hired men are not hurried as in haying time; and the open swoop of the whole loft for the free play of the horse-fork, more than overbalances the advantages of box shoots for carrying down the fodder.

Design III.—Barn for General Purposes.

This building was designed at the request of a Missouri farmer, and Short-horn breeder, who wished to erect—on ground sloping to the west, one foot in

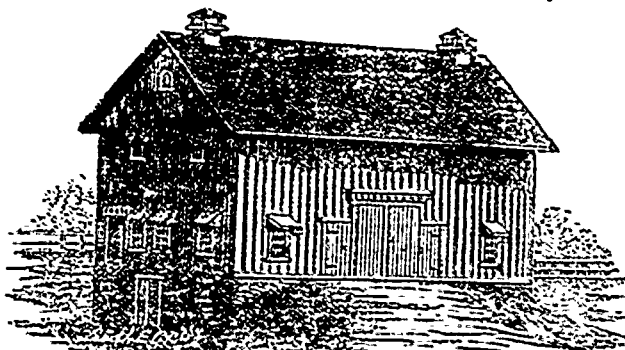


Fig. 5.—Barn for General Purposes.

twenty—a barn to contain the following: Thirty head of cattle, 8 horses, 600 bushels of grain, 1,000 bushels of ears of corn, 60 tons of hay; room for shelling, cutting, and grinding; for tools, small tools, and work-bench; for horse-power, &c., and for a quantity of unthreshed grain, equal to one-half the bulk of the hay, as the granary indicates it.

Fig. 5 represents the main floor, the barn being 38 by 68 feet outside. The floor in the middle is 20 feet wide; the bay for hay, on the right, 28 feet wide; leaving 20 feet on the left for granary and stables. The tool room, 12 by 28 feet, affords ample space for workshop, and all the smaller tools. The floor is large enough for the tread-power (which is more convenient, and better than a lever-power in this case), and for waggons not in use. It is more convenient to run them out from such a floor, than if packed closely in a special house for the purpose.

There is also plenty of room on the floor for shelling corn, cutting straw, &c. Most of this work can be done towards the rear of the floor, as there are two good windows, one on each side of the rear door, to let in an abundance of light.

As horses often suffer when kept in a damp base-

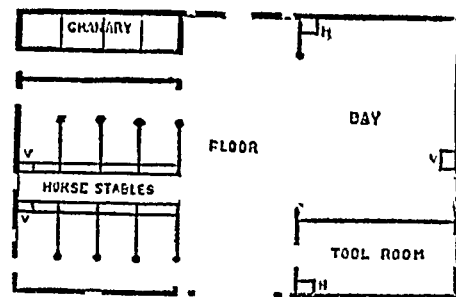


Fig. 6.—Main Floor.

ment, these stables are placed above. They are entered from the barn floor, through the front side door, and are supplied with hay from the same floor, thrown down from above. If desired, hay for the horses may be stored over the stables, and hay tubes extended down from this to the horses; four such tubes would be required for the eight stalls. We should prefer omitting them, as they are in the way of filling the bay with hay. The stables and granary may be nine feet high; and the space over them being 20 by 38 feet, and extending upwards about 16 feet more as an average, this bay would hold about 24 tons of hay, or an equal amount of unthreshed grain. The large bay on the right, 28 by 38 feet, and extending upwards about 25 feet in all, will hold 50 tons of hay. Floors over the main floor will hold ten or twelve tons more.

Horse stables should be placed in the basement only when the earth on which the barn stands is dry and gravelly, and partitions are made between the walls and the stables. When practicable, it is safer to put them above, as in this plan.

The granary is situated at the corner, and an outer door opens from it, so that a waggon below may be readily loaded from it with filled bags.

Ventilators are shown at V V V, and hay tubes at H H, through which hay is thrown down to the feeding alley in the basement. It will be observed that these ventilators and shoots, being placed against the walls, are not in the way of storing the hay in the bay.

Fig. 7 is a plan of the basement, which contains room for 30 cows. The double stalls are seven feet wide, with a stout post in each, to separate the two cows. At the end of each line of stalls is a box, or pen, for cows with calf. Each line of stalls is about ten feet wide, the feeding passages four feet wide, and the manure passage ten feet wide. The cleanings are thrown into this passage, and a waggon, or cart driven through to carry off the manure—either to the compost heap, or, what is

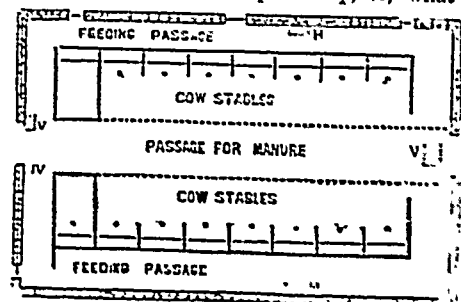


Fig. 7.—Basement of Barn.

attended with least labor, directly to the field, and spread at once. The dotted lines at H H show the places where the hay is thrown down through the hay tubes from above, and V V V are the places of the ventilators. [The mode of constructing the tops o

these ventilators, above the roof, was described in the last number of the CANADA FARMER.]

We have found it very convenient to place a crib, or granary, for corn in ear in one corner of the barn, over the basement, by making the floor of slats, and open to the free circulation of the air, or draught of wind, which blows up freely among the ears, and keeps them dry, if not piled up more than five or six feet thick. The small quantity of shelled grain which drops through the slats is picked up by hens below. We have not shown this crib in the plan given, because rats are commonly so abundant that they would destroy much of the grain, which was prevented in the case we have mentioned by a free range of cats. It will therefore be best generally to construct a separate corn-house like that shown in fig. 8, from

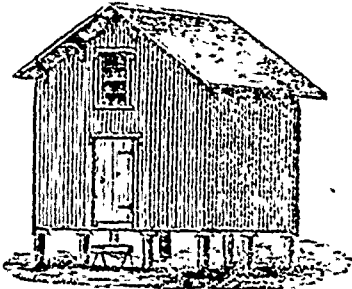


Fig. 8.—Corn House.

which rats are excluded by placing the building on short, round, and heavy durable posts, cased with tin, and with an inverted tin pan on the top of each with the wire rim cut off. A passage runs through the building, with the cribs on each side, these cribs being filled from above.

There are a few details in erecting this barn, which we may mention briefly. By extending the barn floor without any obstruction under the large bay, by using trussed beams, waggons may be run there when the barn is empty, and in filling this bay, the first loads may be driven from the barn floor to the bay, and the load pitched off—a little backing of the waggon being required before driving out.

The basement walls should be about nine feet high, and at least two feet thick—2½ feet would be better. The bank thrown up to make a roadway to drive in, should never in any possible case rest against the wall, or it will ultimately throw it over. There should be either a dry wall outside for the earth to rest against, or a vertical stratum of gravel, or broken stone, two or three feet thick; or a separate wall with a space between, bridged with plank. We should prefer the broken stone. The walls should go below frost, and rest on a trench of broken stone for drainage.

The posts should be 20 feet high, as hay is easily thrown up by the horse-fork to any height. The horse-fork, and hay-carrier working together, readily fill the large bay, which is 25 feet wide.

The view represents the siding placed vertically, and battened. In common places, a good plank floor is most easily kept clean.—*Ill. An. Rural Agri. s.*

Duck-House.—A shelter for ducks should be built separately from the chicken-house. It should not be higher than five feet at the front, sloping to three in the rear. It should be surrounded with a fence of small pickets, about 18 inches in length. The nest should be very low; a basin scooped out of the ground makes a very good nest, which is only to be used for laying, as it is best to let hens hatch the eggs. A duck will lay a much larger number of eggs, if each one is removed from the nest as soon as deposited. That the eggs may be readily taken away, the nests should be made at the front of the house, and one of the boards hung upon hinges, so that it may be swung to one side, and the eggs picked up. There are no better ducks than the Rouen, which grow rapidly to a large size. Ducks should not be admitted into that part of the garden where young cabbages, or lettuce is planted; anywhere else they not only do no mischief, but destroy numerous insects, and disturb many more by their constant active movements.—*Tribune.*

The Apiary.

The Outlook for Bee-keeping.

Bee-keeping has come to take a high rank among the productive industries of the world. For want of statistics, which have never yet been faithfully collected, and which it is very difficult to get with any accuracy, only general terms can be employed when speaking of its condition and progress. A national census throws but little light on this subject, for census commissioners do not usually enquire about live-stock so insignificant as bees, and what information they get is drawn out of the people by questions. They have a printed catechism, which does not embrace the enquiries, "Any hives of bees?" "How many?" and hence the most profitable kind of live-stock in proportion to cost and value, finds no place in the record. Very much the same is true of the honey product of this and other countries. It is very imperfectly represented by figures, and it is only partially found in commercial reports that are devoted to market prices. We are consequently quite in the dark as to the important items of consumption and demand.

But amid all this vagueness of knowledge about apiculture and honey, there are some things that stand out distinctly enough. One is the universality and abundance of honey. Everywhere in the innermost hearts of myriad flowers the Creator has garnered up stores of liquid sweet, which wait for collection and appropriation. Another thing we are perfectly sure of, viz., that this teeming and superabundant sweetness can only be made available to man's use through the good offices of the bee. Whether the floral sweet is really honey as it lies treasured in the flower, or whether it undergoes a chemical change in the body of the bee, whereby common saccharine matter is transformed into honey, we need not now stop to inquire; but it is absolutely certain that if man is to have honey, the bee must collect and store it for him. Every school-boy knows how to get at the drop of sweetness that lies hid in a head of red clover, but there is no way of doing it on a large scale except by pressing "the little, busy bee" into our service. We know, moreover, that the proportion of honey actually gathered, and made available for human use, is very small compared with what might be got, if there were gatherers enough to do it.—Further, it is quite certain, that there is no danger of the market being glutted with honey. It has never been abundant enough to cause a decline in the price, except as there has been doubt in regard to genuineness of quality. The best box honey never goes begging for purchasers, and the same would be true of extracted honey, but for a prejudice growing out of doubt as to its purity. Finally we know, that bee-keeping, though subject to fluctuations, is no more than most subaltern things. Even the wheat crop sometimes fails, or when it does not fail, the demand slackens, and the price is low. In every line of business there is more or less of uncertainty, risk, and liability to sustain loss. This is no more true of bee-keeping than of other pursuits, and therefore it may fairly take rank among the safe and regular occupations of mankind.

So much being settled in regard to the present condition of bee-keeping, let us glance at its future. It is now reduced to a science, which, though in its infancy, has its main principles ascertained and fixed. It is also an art whose essential manipulations have been reduced to a system. Only those will succeed in it, who master the principles of the science, and learn the *modus operandi* of the art. It is passing out of the hands of unscientific and unskilled people, who are convinced that it is an unprofitable business, and better hands are taking hold of it. Our best bee-keepers make apiculture pay, and some of them are

quietly amassing snug little fortunes out of the industry of the bee. As a higher class of bee-keepers get possession of the field, and apiculture acquires its true status among the industries of the world, many will be attracted to the pursuit, who, instead of rushing into it with ignorance and ardour as their only qualifications, will first lay the foundation of success by thoroughly learning their business. We look for the springing up of a new generation of advanced bee-keepers,—bee-keepers who will be free from prejudice against book-learning about rural matters, and who will believe in movable-frame hives, Italian bees, and honey-extractors. The disasters of the past two years, which have fallen most heavily upon the ignorant class of bee-keepers, have had the effect of discouraging these, and leaving only those in the field of apiculture, who have science enough to account for failure, and faith enough to try again, and keep trying, until they achieve success.

We believe, too, that the age of empiricism in bee-keeping is passing away. Impostures feed and live on ignorance. Worthless patents and clap-trap appendages are thrown away so soon (as the novitiate of bee-keeping is past. What apiarian of any experience has not plenty of old lumber in the shape of abandoned hives, and rejected "fixings?" We know now that with the movable-frame, air-space, and the requisite room, bees will store honey in any sort of receptacle, and that the bee-keeper may suit his own taste and convenience in the matter of hives. Moth-traps, non-swarmers, and the endless little variations about frames and hives, which have been made excuses for getting patents, are fast coming to be estimated at their real worthlessness, so that the trade in them is growing unprofitable.

An eager demand for trustworthy information and teaching on this subject, begins to manifest itself on every hand, and we shall soon have a race of studious, painstaking, successful bee-keepers, whose influence will allure multitudes to this fascinating pursuit, and these in their turn will draw others into the apicultural ranks. So important and growing an interest must have due representation in the press, and will find it in such periodicals as make it their aim to advance apiculture, irrespective of all merely selfish interests.

It is neither to be expected nor desired that everybody should undertake to keep bees. Many have neither the taste nor facilities for so doing. While some little profit may be obtained from bee-keeping in almost any locality, there are places where it would hardly pay to go largely into apiculture. There are others where this business can be made to pay well. It is like any other rural pursuit. There are localities particularly suited to wheat-growing, to stock raising, to the dairy business, or to fruit-culture. Something may be done with any or all these industries anywhere, but the greatest success can only be expected where the facilities abound. As the best honey districts come to be ascertained, bee-keeping will naturally establish itself in them, and become an "institution" there. It will have its times of prosperity and depression, like every thing else, but so long as the earth teems with honey, and it is the instinct of the bee to gather it, and the nature of man to eat it, we may be sure that bee-keeping will be an industry of great and growing importance.

Bees will make more wax when fed on sugarsyrup, than when fed on honey, and will winter better on it.

Some experienced bee-keepers are wintering their stocks in dark closets and other above-ground apartments, finding that they thus escape damp. If this course is adopted, the honey boards must be removed and a blanket or other porous covering substituted, so that there may be circulation of air and escape of moisture.

Horticulture.

The Past Year.

As we enter upon another year it may be well to look back and note what of value we have gained during the year just passed. Our pomologists and florists have been at work plying that art "which does mend nature, change it rather, but the art itself is nature." Others of them have been seeking out from other lands those later productions or discoveries which gave promise of value for us, whether for the gratification of the palate or the eye. Nor have these labors been without result. In the department of fruits some apples of fine quality and more than ordinary promise have been brought into notice. One of these is a winter russet, having much resemblance to the well known Roxbury Russet, the origin of which is unknown. It was exhibited at the last winter meeting of the Fruit Growers' Association by Mr. Stott, and received the prize of ten dollars for the best seedling winter apple shown. It seems to be an excellent keeping variety and the flavor better than that of the Roxbury Russet. The tree is sufficiently hardy to thrive well in the vicinity of Markham. We understand that the Messrs Leshe have obtained scions of it, and will thoroughly test its character and quality.

Another apple that has commanded the attention of pomologists by its marked excellence is the product of cross-fertilization accomplished by Mr. Charles Arnold. A flower of the Northern Spy was impregnated with the pollen of the Wagener and Spitzenburg, and from the seed of the apple thus worked upon, the tree was raised which bears this fruit, which in form is much like a Wagener, yet having the coloring of a Spy. This apple is of medium size, having a yellow flesh, which is very tender, and juicy, of "very good" quality, if not "best," presenting a blending of the flavor of the Wagener and Spy. We learn that the Fruit Growers' Association have made arrangements with Mr. Arnold to grow a sufficient number of the trees of this variety to enable them to distribute one to each member as soon as they can be raised.

There has also been introduced from Michigan an apple known as the Shawassee Beauty, the name being derived from the county in which it originated. It bears considerable resemblance to our Fameuse or Snow Apple, having, like that variety, a very white, tender, juicy and refreshing sub-acid flesh. It ranks pomologically as "very good," and is in use from November to February. It is believed that this variety is not so subject to those black fanged spots which so often injure our delicious Snow Apples.

The additions to our pears, we believe, have been made entirely from abroad. Although our hybridists have not neglected this fruit, we are not aware that any that have been grown by them have fruited. Quite a number of new varieties have been introduced, among the most promising of which we may name the *Souvenir du Congrès*, a fruit larger than the Bartlett, yet having considerable resemblance to it, and ripening a few days earlier. Then there is the *Brockville Park Pear*, having some likeness to the *Louise Bonne de Jersey*, and said to be a splendid fruit. Both of these very promising sorts have been recently introduced by some of our enterprising horticulturists, but considerable time must elapse before it will be possible to say how valuable they will prove to be for general cultivation here.

In Peaches, something has been done by our Canadian amateurs, and we believe that both Mr. Cowherd, of Newport, and a lady in Hamilton, have raised some new sorts that are thought to be worthy of more extended trial. But it is to Mr. Rivers, of England, that fruit growers are indebted for a number of new varieties that for earliness of ripening and

excellence of flavor will prove of great value in all those parts of Ontario in which the peach tree will thrive.

Early Beatrice

is one of the very earliest of all peaches, and will probably ripen here in the first days of August.

Early Louiso

is only a few days later, and is described by Mr. Rivers as being of excellent quality.

Early Rivers

is larger than either of the foregoing, described as being of a remarkably rich, racy flavor, and ripening a few days after Early Louise.

Early Silver

is very large, melting and rich, and ripens about the same time as Early Rivers.

Besides these there have been introduced some dozen other new and valuable sorts of peaches grown by Mr. Rivers, most, if not all, of which will probably prove to be valuable for cultivation in the open air or under glass.

Of plums, but one variety has come prominently before Canadian fruit growers, and that is one that has been raised by Mr. Alex. Glass, of Guelph. It is a very large, handsome, purple plum, ripening early in October, apparently free from rot, bearing handling and carriage remarkably well, and keeping a considerable length of time after having been gathered from the tree. We have been informed that a tree of this new plum will be given to every member of the Fruit Growers' Association in the Spring of 1876, and we believe it will prove to be a very valuable acquisition to our list of plums.

A cherry of considerable promise has been lately introduced, that originated in Nova Scotia, and is there known as *Starr's Prolific*. It is a hardy tree, bearing most profusely, and the fruit bears a close resemblance to the Mayduke.

Mr. James Dougall, of Windsor, has raised a very early cherry, ripening before the Early Purple Guigne, and quite equal if not superior to it in flavor. It was exhibited by him at Chatham, last summer, and was much admired for its earliness and good quality.

The grape seems to have been a favorite subject of experiment with our hybridists, and new varieties are being constantly brought to notice. Many of these will prove in the end to be of no value, but some will remain and take a place among the hardy grapes that are generally cultivated. Of those that the writer has seen during the past year, and he has seen and tasted a large number, two have made a strong impression as fruits of the first quality. One of these was grown by Mr. W. Hoskins, of Hamilton, and the other by Mr. P. C. Dempsey, of Albury, and though these hybridists reside so far apart, yet it happens that these grapes are both bred from the same parents, and a bear very strong resemblance to each other.

The Committee that examined them admired both very much, yet on the whole gave the preference to that one raised by Mr. Dempsey, and since then we have been informed that the Fruit Growers' Association will distribute this new Canadian Grape to all its members as soon as a sufficient number of vines can be grown.

In small fruits, the most noticeable achievements have been made in hybridizing the Raspberry. Both Mr. Saunders and Mr. Arnold have succeeded in raising a number of new varieties. Some of these are very interesting in a scientific point of view, and some give promise of being very valuable additions to our list of Raspberries on account of the hardiness and wonderful productiveness of the plants, and the fine quality of the fruit. Arrangements have been made to have these hybrid raspberries very widely disseminated and tested throughout the Province.

A new Strawberry has been grown by Mr. Arnold, which is a marvel of productiveness, and commands a ready sale in the fruit market. Such, however, is the fastidiousness of the Strawberry with regard to

soils and exposures that we can predict nothing with regard to its value for general cultivation, which can be ascertained only by extensive trial. As yet we believe its cultivation has been confined to the grounds of its originator.

Experiments are also being made with the gooseberry, in the hope of obtaining varieties of large size and fine flavor which shall not be subject to mildew. Mr. Saunders has raised a number of hybrids which are beginning to show fruit, but of which nothing positive can yet be said. The best variety we now have is the one known as the Downing, which was raised from seed by Mr. Charles Downing, of Newburgh, N. Y.

We have thus passed hastily in review those new fruits which have been brought most prominently before the public. It will be seen that the pomologists of Ontario have not been idle, and that we have men imbued with that love for these pursuits which will surely accomplish something of value for our province and for the world.

On Espaliers.

BY P. E. BUCKE, OTTAWA.

We are of opinion that the subject of growing fruits on the espalier principle has not received that attention which it should have in this country. Perhaps one reason for this is the land used for gardening purposes is not so expensive as in older settled parts of the world. This, however, is not the only consideration, and should not cause this useful, ornamental, and economic mode of culture to go out of practice. When we say useful, we mean that it shelters the ground used for vegetables from an over-powerful sun. We have now in view a garden of seven acres, the beds of which are lined with grapevines, grown on the two arm system, cutting off every shoot to two eyes. The arms are four feet each in length, making eight feet to a vine, the annual shoots are not allowed to grow more than five feet long to upright wires attached to two horizontal poles; these are nailed to two posts set firmly into the ground. The reason for growing the vines on this plan is because the locality is one of the coldest parts of Canada, and they have to be covered with soil every winter. Now, a vine grown on this method, resembles in every respect, an espalier tree, and as far as we can learn, the garden referred to grows as good vegetables as any in the neighborhood, the shelter from the vines having no deleterious effect, and at the same time an excellent crop of grapes is secured.

In an ornamental point of view, nothing looks better than walks lined with espalier trees, and nothing can be neater than a nicely turned corner of a bed, the stock set at the point of the angle, and the branches trained along the end and side.

This mode of culture is economic, because little or no ground is used for the growth of the tree, and as good crops, and often finer fruit is obtained under this system than when trees are trained with a bushy head.

It is hardly necessary to state that dwarf trees are those chiefly used for espaliers. Dwarf apples on Paradise stocks should be planted from ten to fifteen feet apart. Pears and quince stocks may be planted twenty feet apart; cherries the same distance. In selecting trees, obtain those with three shoots, or if this is not possible, set those you have obtained where they are to grow, and the second year after planting, cut them down to within eight or nine inches of the ground. From this stump allow three shoots to grow. The lowest of these may be tied down the following autumn or spring, to within ten inches of the ground, the leader, or upright shoot, should again be cut off, say twelve inches from the other two; the leading shoot should be tied to a stake. The following season three more shoots may

be allowed to grow, being one leader, and two more for horizontal arms; the next spring, or the same autumn, head down the leader to fifteen inches, and tie the side shoots down to the stakes as before. This practice should be followed until the desired height is obtained, growing two side shoots every year, and heading off the leader.

The mode of staking espaliers is as follows: During the first year, after the three shoots have grown, a stake must be set to tie the upright shoot to, and two others twelve inches on each side are required, to which are attached the horizontal arms. The stakes used should be two inch cedar poles, the bark pared off, and the smallest end sharpened, and dipped into, or brushed over with gas tar, as far as it is necessary to drive them into the ground. These stakes should stand five feet high, and a light rail attached to the top for neatness, and to keep them steady. As the tree extends, the centre stem will be found strong enough to support itself, and the side arms will strengthen with age, so that very few stakes will be sufficient to support the tree when it has come to its full size and height, probably six or eight will be sufficient. It is better to have a light rod tied across the stakes to tie the growing shoot to, during the summer season; this keeps them straight and regular in the proper direction. Stakes will be required every eighteen inches or two feet apart, as the side arms extend.

In Britain, young willows are principally used to tie espaliers to the stakes with, but bas-matting, or any soft material, will suit equally well.

The fruit of espaliers is seldom shaken down with wind, when the arms are well secured; and it is always well colored, because the sun and air have free access to all parts of the tree.

Aponogeton Distachyon.

This is one of the most fragrant and desirable of aquatic plants, and its value is doubly increased from the fact that it is perfectly hardy in England. The flowers proper are very inconspicuous, as they merely consist of a dozen stamens, with dark purple anthers and are without either calyx, or corolla. The chief beauty of the plant, however, consists in a forked inflorescence of large pure white scales, at the base of each of which a flower is situated. From seven to nine of these flowers are commonly present on each side of the forked bracts, and, as the close little clusters of dark purple stamens contrast with the pure white of the scales, they do not tend to mar, but rather to justify the floral beauty by their little, contrasting starlike appearance. The whole inflorescence is deliciously fragrant, and, as long stalks are affixed to each, they are admirably adapted for bouquets, and for this purpose they are greatly used, more especially in winter when anything white is in demand, particularly for bridal wreaths and nosegays.

The *Aponogeton distachyon* continues flowering throughout the whole winter, excepting when encompassed by ice. Some days since, I saw nearly three dozen of these plants in pots, placed in a shallow stream of fresh water, in Mr. Parker's nursery, at Tooting, and there they had always been grown. The plants were vigorous, healthy, and, although it was the 1st of February every plant had one or more blooms upon it, and a good appearance of a plentiful future supply; indeed, Mr. Brown, Mr. Parker's manager, assured me that they had culled from these plants an average of two dozen flowers weekly during the whole winter. This however, must not mislead people into the imagination that they are only winter flowering plants; on the contrary, their blooming period is the whole year, but more particularly the warmer months. These plants, as a rule, are regarded and treated as conservatory aquatics, and for this purpose they are well adapted; yet the usual method of treatment is to winter them indoors, and replace them in a tank in the open air in spring, which is another applicable mode. For growing in a cold frame, no better winter subject could be chosen; nor under such circumstances does it require a great depth of water. In a deep seed pan, with the holes stopped, and containing another for holding the soil within it, so that about two inches deep of water may cover its surface, the plants will grow and flourish. Indeed, I have seen good plants of the *Aponogeton* grow in pans containing two inches deep of mould, surfaced with pebbles, and filled up with water.

A very pretty indoor illustration exists at present in the Mossesbury-anthemum house, at Kew. The plant is growing in a small pot placed within an inverted large bell glass, filled with water; here it bloomed freely throughout all last year, and continues to do so yet. For window aquariums, this is among the best of plants, and I saw one in wonderful perfection in a house in Belgrave square, this winter, growing in an ordinary glass vase, the roots being planted in a pot which was placed within the vase. In using this plant for indoor aquariums, it must be remembered that it will by no means suffer to be pent up in a close case.

A good yellow loam, and some rotten manure, is a good compost for these plants. Growing them in pots, under all circumstances, is the best method, because then they can be readily transferred to any required position. When in pots they can be placed on other inverted ones, should the water be too deep. Four inches deep of water over the surface of the soil in which the roots are growing, is sufficient for them, but a little more or less is immaterial.—*The Field*.

Protecting Trees from Rabbits.

Dr. Howsley of Kansas, in *Western Planter* says:—I have, for the last several years, used with the most satisfactory results, a whitewash, composed of fresh slacked lime and soft soap, brought to the consistency of ordinary paint, with common flour paste added, to make it adhesive. This composition applied with a common paint brush, has, with me, always been effectual. In this mixture the lime is not only offensive to the taste of the rabbits, but also destroys any lurking insects which may have taken shelter there for the winter, and by its absorption through the pores of the bark furnishes food for the growth of the tree. The soap has, in this case, a similar influence to that upon animal body—that of cleansing the surface and keeping open the pores of the bark for the free escape of all useless matter from the inside out, and for the free passage from the outside in, of whatever may be necessary for the health and vigor of the tree. The flour paste, as before remarked, is only for the purpose of making the lime and soap more adhesive; for without the paste, the other ingredients are liable to be washed off before warm weather and might, therefore, have to be applied a second time during the winter. With this composition, an active boy may, in one day, protect a thousand trees. It is only applicable to young orchard trees, but may be very profitably applied to nursery trees as well.

Another Plan.

PRESERVING YOUNG APPLE TREES FROM RABBITS.—Beef's or hog's liver rubbed on the tree where the rabbits are likely to work will prevent their ravages. I have tried it—and I live where there are thousands of them—and have never had a young apple tree hurt that has been so treated, and I have seen rabbit tracks all about the trees. Hang the liver up when the hogs or beavers are killed in the fall, for such use. It pays.—*F. H. H., Toledo, Iowa*.

EARLY PEARS.—The varieties of pears which mature early have not been regarded as possessing very desirable qualities. The Doyenne d'Ete affords us the first taste of the fruit, ripening it does the latter part of July but it is a very small pear, decays rapidly, and the flavor and quality are no more than second or third rate. The Rostiezer, however, is one which forms an exception to early pears as a class. It is a spiny, juicy fruit, with a sweet, delicious flavor. The Rostiezer hardly falls behind the Seckel in quality and the tree, although long-limbed and unsightly, is thrifty and a good bearer. The fruit ripens early in August, and the process of ripening is not sudden, but continuous, which is a great advantage. Among the fifty or sixty varieties of pears in our orchards, we have no greater favorites than the Rostiezer, and we recommend its cultivation more generally. It is very handsome fruit, not large, pyriform in shape, with a color in which golden and carmine hues are blended. The tree does well on quince stocks, and requires a rich and rather moist soil. It is decidedly the best and most desirable early pear we have.—*Journal of Chemistry*.

THE TETOFSKI—As evidence of the early period at which the Tetofski comes into bearing, *The Western Farmer* mentions that A. G. Tuttle, of Baraboo, Wis., had probably 100 bushels of these apples on the trees in his nursery rows, some of them only two years old. This early bearing habit, the hardness of the tree, and the early ripening, beauty and fair (though not first-class) quality of the fruit, are thought sufficient to render the Tetofski worthy of being more extensively planted than in time past, particularly by those who are at present destitute of apples.

Canterbury Bells.

So long as the colors of these fine old border flowers were confined to blue and white, though constantly grown side by side, breaks of form and color were unknown, but, by and by, when we got from the continent a rose-colored variety (double and single) after a year or two of cultivation here, crossing with the other colors ensued, and from the seed were produced new colors and finer forms, both double and single, so varied and so beautiful, that it is impossible to doubt that when generally known, these new varieties will again elevate the old Canterbury Bell into a foremost place as a border flower. The double forms consist in some cases of two cups, that is one immediately inside the other, and in other cases of a third cup, which by being somewhat cramped in the centre of the others, gives to the flower a perfectly double appearance, and one also of considerable solidity. I think these double flowers are likely to prove most useful to cut from in quantity for bunching, as they are produced on the extremity of stems from 3 inches to 6 inches in length. I have a large bed of these new Canterbury Bells just now in full bloom, and very striking they are; especially the rosy-pink, mauve, and deep bluish-purple tints. In addition to these there are also pure white, bluish-lilac, pure peach, and several darker shades; indeed it would be an easy matter to pick out a score of diverse hues. Bee keepers should grow Canterbury Bells largely; my flowers of them literally swarm with these industrious little insects from morn till night. Seed of the Canterbury Bell should be sown early in spring, either in a box in a cold frame or house or in the open ground. In all cases it is necessary that they should be got forward early, so that the plants may be as strong as possible for the winter, otherwise they may not bloom the succeeding summer. If the seed be sown as soon as gathered, the plants cannot be got strong enough to bloom the next year, but they will be extra fine for the succeeding summer.—*The Garden*.

Melon Culture.

The best soil, says *The Rural Messenger*, is that which admits of ready drainage. Watery as the fruit is, it does not require much rain to produce it. In fact, the vines flourish and bear even on a bank of sand. We would then select the lightest piece of ground available—grey and sandy—and put it in good order, using plenty of well rotten manure to each hill. Digging holes of sufficient size, and depositing the manure in them during the winter, is doubtless the method to be preferred; but if this has not already been done, we must resort to some other plan. We would still make an excavation, and manure liberally, with a view of retaining moisture in time of drouth. Much depends on giving the plants a vigorous start. Force their early growth with a free application of bone phosphate to the hill. Keep the ground clear of grass and well stirred until the vines begin to cover it, but as the roots run to the full length of the vines, and grow as fast, the working should not be more than two or three inches deep. With this treatment, we believe there would be few failures in growing water-melons, and as they are a favorite with all classes, it is well worth the trouble, whether for market or private use.

VARIEGATED ABUTILONS.—Allow me to recommend to the notice of your readers a variegated form of the *Duc de Malakoff Abutilon*, which is in every way superior to *Thomsonii*; the former has a much larger leaf than that of the last named kind, is more beautifully marbled, a stronger grower, and the flower is much darker in color than that of *Thomsonii*. One of the most charming Abutilons, however, and probably the most useful for bedding purposes, especially as an edging plant to be pegged into form, or to grow down and cover a sloping edge of some 9 to 12 inches deep, or as a carpet plant, or for baskets, is *Abutilon varicillarium*, a real creeping variety, having a habit of growth much like that of ivy. It has small, pointed, and richly marbled leaves, that are most effective in color, it is also a free growing kind which can be readily propagated, and is moderately hardy. Those who have large quantities of plants to bed out yearly, will do well to make a note of this variety, which I am certain will prove everything desired in its peculiar color for the purposes mentioned.—*The Garden*.

THE LARCH.—B. W. Steere, of Mich., writing to *The Country Gentleman* commends highly the European Larch as an ornamental, to which we say aye. It holds its foliage late in the fall, and is a fine contrast to evergreens planted among them.

The Good Old Times.

Admiring my flowers, young gents, I see,
Well, they do look pretty, it seems to me,
Though I fancy, bezzing, y' ar paldons,
There's some who would think the marigold,
The stock, and carnation too prim and old
For your fine, new-fangled gardens,

Seems to me, in these change about days,
Our gardens an' us, h' are going the ways
Of all that's staple and homely;
Change I give the bloom of my youthful hours
That we give to our sweet-thrarts for gaa-her flowers,
Not half so pleasant and comely.

Do I see to the gardens myself? Not I;
My time for that, sir, is long gone by;
'Tis my grandson's hobby, you see, sir;
He takes a pride in it like dear old I;
For he knows it pleases the old grand old,
And he's always thinking o' me, sir.

O yes, sir, this little piece is my own,
And Willie will have it when I'm gone;
And I don't get younger orst younger,
For I'm eldly, five come next birthday;
So I can't expect, as a body may say,
To be spared many summers longer.

My fever and fret 'o life are gone,
And I like to sit out here 't the sun,
While frunt memory takes
O'er my childhood's innocent days for a-oth,
The passionate hopes and joys of youth,
And manhood's trials and changes.

And, the times have altered, sir. You're right,
And not for the better I fancy, quite
Though it may be a whim of mine too;
When we're hopeful and young, I suppose,
Everything looks the color of rose,
And we carry our own sunshine too.

Your railroads and gas, that you boast about,
May be all very clever and fine, no doubt,
And the age be as grand as you say it is;
But I miss, somehow, the better ways
Of the dear old-fashion'd leisure days,
With their homelier tastes and gaites.

—The *Belgravia Annual*

Parsley Culture.

In our cookery we often miss those little trifles which give so much zest to European dishes. We generally have meats and pastries in abundance, and even, in many cases, a fair show of fruit and vegetables; but an infinite variety may be given to even every-day things by a judicious use of pot herbs.

Among the most useful to the ingenious cook is the Parsley, and perhaps there is no one kind of the large number used in Europe that is better known to American women. Whenever the head consults with the heart of the house about the little garden affairs, and the list of seeds to be procured is under earnest discussion, she is tolerably sure to close with the injunction, "be sure and have some Parsley sown." And the Parsley is bought and sown; but how many gardeners ever have it for all the anxiety and care to get the seed? The fact is, it is almost always sown too late. It takes six weeks to germinate, and then its early stages of growth are slow, so that it comes up about the time the weather is getting warm and dry, and unless in a very favorable spot, burns out, or is in some way destroyed. This is if allowed to sprout at all; for generally the amateur gardeners, not knowing that it takes six weeks to sprout, considers the seed bad, and sows something else in the place thereof.

Parsley seed ought to be amongst the very earliest of seeds put into the ground, and it should have selected for it rather a dry spot; and yet one not much exposed to the full sun in summer. Many like to have plants in the fall to lift and put in pots or boxes to keep in the window and gather from all winter. For this purpose the plants must be kept from going to seed in the summer time, which they are very likely to do, especially if sown early. Sometimes when planted late there is no tendency to go to seed, if it grows at all, but remains green and stocky all the summer and fall. It is not always that early sown Parsley runs to seed, but it often does. If allowed to perfect the seeds, the plants either die or become much weakened.

When lifted in the fall for winter-use, many put the roots rather thick in square boxes—any sort of box which comes to hand; but many give ornament to utility by having tasteful boxes made; and some even put the roots in shells or hanging-baskets. We have seen holes bored in small kegs, and after filling the keg with earth the roots are inserted through the holes, and when neatly done the effect is very good. Of course, in such cases, a hole must be bored in the bottom of the keg also, in order to allow the surplus water to escape.

There are several varieties of Parsley, but the double curled is the best for general purposes. It makes a pretty ornament for table dishes even when not wanted for actual use; and when the roots are taken

up for winter preservation as described, the pretty figured leaves of the curled variety is as beautiful to look upon as many of the rare plants grown expressly for ornamental purposes. — *German Town Telegraph*.

The Champion Grape.

In our issue of Aug. 30th, we spoke of this grape, saying that we saw it on the 26th well colored, and ripe enough to sell, but not in its best condition since then we have eaten it in various stages of ripeness and over-ripeness. It is a large, compact, shouldered bunch, grapes round, bluish-black, nearly as large as the Concord, with a rather thicker skin, adhering well to the stem. In quality we think it a little inferior to Concord or Hartford Profite, but in beauty excelling the latter and nearly equalling the former. In period of ripening we should say that it is eight or ten days earlier than Hartford. Mr. James Stone, of Greece, to whom we are indebted for the opportunity of making the acquaintance of the grape, shipped most of those grown in his neighborhood to Canada, realizing from twenty cents down to twelve cents per pound, while the Hartford opened at six and eight cents only. From this we see that they are attractive enough to sell at better prices than later varieties will bring. The chief value of the grape seems to be its earliness, added to its vigor and hardiness. These three qualities commend it to high latitudes.

Its Origin.

In 1869 a Mr. Spalding, of Greece, saw in a fruit-store in Syracuse some early grapes. He learned that they were brought in by an old man living about four miles out. He visited him, and ascertained that he had but one vine, which he found growing in the garden when he came in possession of the place, but that he was then growing some cuttings. Mr. Spalding claims to have bought his plants and sold them to his Grecian neighbors.

Is the Champion a Synonym?

Mr. Lay, of Greece, an experienced fruit-grower, brought us some grapes from his garden, on the 9th inst., which he claimed to be identical with the Champion, and which he procured from Syracuse, under the name of *Talman's Seedling*. On his way he stopped at Mr. Filer's and got a few bunches of his Champion. He was unable to decide which of the bunches came from his place, and which from Mr. Filer's. Some of the bunches were hardly ripe, while others were over-ripe, and of course there was a decided difference in their flavor, but perhaps no greater than we perceived in different specimens of Champion, in different stages of maturity. Upon the whole, we could not decide whether they were two grapes, or were synonyms. — *American Rural Home*.

Preserving Celery.

Celery, from being one of the rarest of vegetables, seen only on a few tables, has become a necessity to all who delight in good living. There are many ways of preserving this esculent, so that it may be accessible for use at any time, some of them involving more trouble and expense than families are willing to undergo. We have found the following a simple and reliable way. Select a dry, elevated spot, where water never stands, and dig a narrow trench—say six or seven inches wide—deep enough to receive the entire plant. Nail two boards together so as to form a roof over the celery, reaching about three inches on either side of the trench.

Take up the celery, roots and all, whether blanched or not, and stow it compactly in the trench, covering with the boards. As the cold increases, strew straw, or any litter, over the roof, and it will preserve the celery in good condition through the winter, easily accessible at any time when wanted for the table. — *American Rural Home*.

Proper Time to Manure Trees.

People often argue whether it is best to manure trees in the fall or in the spring, but we think that any one who tries it will find that the summer is as good a time as any.

It is only a few years ago that it has been discovered that plants are like animals in this—that they, while appearing to be expending their daily nourishment on continuous growth, are really at the same time laying up food for to-morrow. Those who have examined vegetable cellular structure with a microscope tell us that the formation is exactly like that of a honey comb, the cells lying together of a hexagonal shape, as if made by bees. But it proves that this structure is more like the illustration than those

who used it suspected, in this—that as in the honey comb, honey is stored up for use at a further time, so matter is stored up in these little plant cells for the future use of the plant. There are in almost all plants two growths during the season. The first growth is formed almost wholly from the matter stored up in the cells of the previous year. After midsummer, especially in the apple tree, the whole of the force derived from the past year is expended, and it stores up a little for a new growth, which is soon after made. As the season progresses, the latter or secondary growth also in turn lays up some matter in its cells, for the next season, as the past season has done.

Trees always like fresh food as well as animals; and thus it is with this explanation that one can readily understand how it is that a top-dressing of good manure put under the trees soon after midsummer, when the second growth is about to take place, produces the marked good results we have before recorded. — *Thomas Mehan, in Weekly Press*.

CLEARING MOSS FROM FRUIT TREES.—The *American Agriculturist* says nothing is better than carbolic soap, and lye. Make common lye of wood ashes, not strong, and add half a pound of carbolic soap to a three gallon pud of boiling lye. Apply hot, with a swab, to old trees. It has been used with entire success on apple, pear, peach, and cherry trees, destroying every particle of moss it touches.

LARGE APPLES IN ENGLAND.—The *Garden* gives the following dimensions of some superb specimens grown on dwarf trees: White Calville, weighing 1 lb 4 oz, and 15½ inches in circumference; Canada Reinette, 12½ inches in circumference; Belle de Bois, 1 lb. 7 oz., and 15 inches in circumference. The trees were trained in cordons, and, of course, every advantage of thinning given the fruit. The largest apple which we have seen in this country, was a Fall Pippin, grown in Cayuga Co., N. Y., and weighing 23 ounces—of course on a standard.

FUNKIA SUCCORDATA.—This plant, known also under the names of *F. grandiflora* and *F. alba*, is one of the most beautiful, and at the same time, neglected, hardy flowers we possess. The leaves are of a light yellowish green, and the flowers held well above the foliage on foot-stalks 12 to 16 inches long. They are of the purest white, nearly 4 inches long, opening wide at the mouth, but with the tube long and slender. They are produced in succession spring from the axil of a little stem-leaf, and are as sweet as orange blossoms. The plant likes light and warm soil, and sunny positions, and should be in every collection of hardy flowers.

THE WEEPING BEECH.—This is a tree of great beauty. Our specimen, 40 feet high, covers an area of 2,000 square feet. Unlike many weeping trees, it grows upward, and then throws its branches down in all sorts of fantastic shapes. Looking upon it from the outside, it seems like a cathedral built by one of the old masters of architecture. Enter through its branches, which sweep the ground, you find yourself in a natural arbor. Look up, and you see a sturdy trunk with a bark like a rhinoceros' hide, and supporting limbs twisted and gnarled as if nature were trying to show how picturesque and beautiful so crooked a thing could be. No tree in our grounds elicits so many expressions of wonder and admiration. — *Garden*.

A NEW HEDGE PLANT.—The *Gardener's Monthly* for December, figures and describes a new hedge plant, the *Elaeagnus parryfolius*, a native of the Himalaya Mountains. It belongs to the Oleaster family, in which are the wild olive of the Levant and the Buffalo berry (*Shepherdia argentea*) of the north-west. It will probably prove quite hardy and of easy culture. It is described as looking very harmless the first year from seed, having then no spines, but large numbers of short branches, from a fourth of an inch to two inches in length, which become sharp spines the second year. The spines increase in size and numbers as the shrub grows older. The second and third years, branches two to five feet long are produced, so that the plant soon becomes high enough for a good hedge. But its greatest value consists in its rarely showing any disposition to grow over six or eight feet in height. After reaching this height, the shrubs grow by sending out strong shoots from the stems near the ground; becoming self-thickening. It makes a first-class hedge if pruned, or if left to itself it is still a good fence. At three or four years the plant bears seed, so that it can be cheaply propagated. Gray says the *Elaeagnaceae* are mostly dioecious, but this species is an exception.

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The Canada Farmer.

TORONTO, CANADA, JANUARY 1, 1874.

Mr. Arch on Canada.

Some United States journals in their eagerness to attract the prospective emigration of English agricultural laborers to their own country, have taken pains to show that Mr. Arch was disappointed in regard to Canada basing their conclusions on the unfavorable opinions expressed by him concerning sandy soil of the farms he visited in the Province of Quebec. As well might we pronounce against the whole of the republic, because certain parts of New England are sterile and rocky, or because many districts in the South are badly farmed. The following paragraph of correspondence from *Bell's Messenger* of Dec. 5th, tells a different story, and, we may add, that several of our English exchanges, contain reports of addresses by Mr. Arch, which show that he has received the best impressions of Canada, and that his visit is likely to result in more correct views being entertained of this country, and a great influx of emigration hither.

Mr. Arch, president of the National Agricultural Laborers' Union, this evening received a public welcome in the Victoria Pavilion, Leamington, on his return from his emigration tour in Canada. The audience was very large, and Mr. Arch was received with much enthusiasm. Mr. Arthur Claydon whose gratuitous services as companion to Mr. Arch, had been warmly acknowledged by the Executive Committee in an earlier part of the day, received a flattering reception from the audience, and resumed his seat amid very hearty cheers. The following resolution was carried, "That this meeting desires to congratulate Mr. Arch on his mission to Canada, and seeing that emigration has become a necessity to the laboring classes as a means of advancing their interest, this meeting is pleased to know that the Government of the Dominion of Canada is prepared to bring the matter to a practical issue by co-operating with the "National Agricultural Laborers' Union." Mr. Arch commenced his address by referring to the origin of the present movement, which he had begun in a pure spirit, not from a desire to injure landlords or farmers, but to improve the condition of agricultural laborers. He disclaimed hostility to the clergy, or to any other class, the Union being anxious to secure the co-operation of all sections. The Union had made no exorbitant demands, nor framed arbitrary laws. He closed the statement made last week at Rugby by a Warwickshire magistrate, that the landlords and farmers had done their best to settle the labor question, and to show that its agitators were mischievous

men. He acknowledged that at the outset he was not favorable to emigration, believing that if the country lost its bone and sinew we must ultimately deplore it. He had now come to see that emigration was necessary. Mr. Arch then gave a glowing picture of his visit to Canada, and spoke in high terms of the way in which the Governor-General had received him, saying, if he had been the Archbishop of Canterbury, he could not have been more courteously received. He had just received from the Canadian authorities the fullest assurances that everywhere they would do their utmost to facilitate the emigration of farm laborers to that country, and see that they were properly cared for. Having gone through many Canadian provinces, he was prepared to say that what England refused for her farm laborers, Canada offered them. He had visited not only towns which had been long settled, but bush life, and in the latter found men earning 45s a week, who did not suffer what he suffered for 16s or 17s a week. The Canadian Government had promised him that they would by next spring, build shanties for English laborers. He had insisted on the laws of decency being observed in their construction, he being as anxious for the moral as for the material welfare of the emigrants. Replying to the taunt why he did not stay in Canada, he said he would do so if free from his responsibility. The Government would clear from five to six acres of land for each emigrant, and allow him the option of taking 100 acres. The Canadian farmers had told him they would give laborers \$20 per month, their board, and good cottages for their families, an acre of land, and the run of a cow among farmers' herds. At his suggestion they agreed to give additional hard cash instead of board. If his programme were carried out in England, it would benefit the farmers. Some years ago, when his father asked for allotment ground, the late Lord Warwick allowed him and others the eighth of an acre at 68s 6d per acre, while farmers had adjoining land of 30s an acre. His programme was that laborers should have three or four acres to cultivate on the same terms as the farmers, and that both farmers and laborers should have security for capital invested in the soil. If laborers were to be treated in the future as they had been in the past, he should say to every honest, industrious tiller of the soil, "Throw down your tools and go to the country which will give you wages home, and land." He denied the statement that laborers could get justice, and urged that if they did not get it, he would agitate till the laborers had left the country and the farmers had to till the land themselves. He concluded his address by an appeal to strong and willing laborers to seek their fortunes on Canadian soil.

Crystal Palace Poultry Show, England.

Two leading shows of Poultry and Pigeons are annually held in England, one the Crystal Palace, the other the Birmingham. The former of these two was held on the 17th and 20th of November last, and was generally admitted to be the most extraordinary and successful exhibition of poultry and pigeons ever brought together. The number of entries were nearly 3,600 in all, and the arrangements were in every way satisfactory; and it may be useful to some of our exhibition friends here to know that the pens were so arranged in tiers, that the different varieties were placed together, one end of the building being devoted to the Dorkings, Brahmans, Cochins, Spanish, French, and Hamburgs; and the other end to the Game, above them being placed the Game Bantams. Another tier of coops were devoted to Ducks, Rabbits, and the selling classes, while the centre of the building was devoted to Pigeons.

Dorkings.

Three classes of Dorkings were exhibited. The colored, silver-grey, and white, silver-greys being more numerous than last year. One would naturally expect a large exhibition of this variety in a country where the Dorking, as a table bird, is held in such high estimation, but it does not seem that the entries were numerous, although the specimens shown appear to be good.

Cochins.

All the usual varieties of Cochins were shown, including a large number of blacks. In the class for old cocks, only eight entries were made; nor in the cockerel class were the entries very numerous, but a very excellent lot of pullets were shown. Many of

the partridge hens, too, were said to be very deficient in pencilling. A good show of whites were made, and considerable advance in public estimation appears to have been gained.

Brahmas.

Of all classes, the Brahmans were superior, both in quality and numbers. The hens of the dark variety were the very best in the show; and in the pullet class, the judges, we understand, had a difficult task in awarding the prizes. The lights, except in numbers, could not, it is said, approach the darks, but were a decided improvement over former shows. Some idea of the largeness of the Brahma class may be formed, when we mention that in the class for pullets, in dark variety alone, there were 104 entries.

Spanish.

Year after year this variety seem to be deteriorating still more and more. This year they were the worst class ever seen at the show. For the class of old birds, only five competitors could be found; the cockerel class was very inferior, and the pullets little better.

French Breeds.

Increasing popularity mark the progress of these breeds, especially the Houdan. It is said that French fowls will soon form an important feature of this exhibition, as much so as do the Brahmans at present.

Hamburgs

were a very beautiful lot, and secured a large share of the attention of the visitors.

Game.

The game classes were hardly up to the standard of former shows, although, for what reason we are left to conjecture; perhaps it may be attributable to the evidently new introduction of Malay blood, as may be noticed by the illustrations in *Wright's Poultry Book*, and that such birds are not yet bred up to exhibition standard.

Bantams.

Game formed a large feature of the show. There were also Black, White, Sebright, Japanese, Cuckoos, Frizzled, Pekins, and Nankins, the latter of which had a class to themselves.

Ducks.

Three varieties of Ducks were exhibited. Aylesbury, Rouen, and Black; besides the "any variety" class. The two former classes were very fine, the cup going to a grand pair of Rouens.

Turkeys

were divided into two classes, young and old, which arrangement seems to have given satisfaction. There were eighteen young birds entered.

Pigeons

were also very successful, and many of our poultry friends will be glad to learn that Col. F. C. Hassard still holds his own, taking a third prize in *Dun Carriers* and Fourth in the *Special Flying Class of Homing Antwerps*, Mr. Tegetmeier only getting a sixth.

The sales footed up to the large sum of £1,000 sterling, nearly \$5,000. A dark Brahma cock and light Brahma pullet were sold each at £20, or \$100; a Cochin cock at £20, and a black-red Bantam cockerel at £25. Altogether the exhibition was a very successful affair, and is but another proof of the ever increasing interest manifested in the feathered tribes by Englishmen.

For the information of Secretaries of Poultry Exhibitions here, we may mention that one prize was given to Dorkings and Brahmans; a second to Cochins; a third to Spanish, Hamburgs and Ducks; two prizes were appointed to Game, and Game Bantams.

The National Peristeronic Society

Held a meeting on the 15th November, 1873, at the Covent Garden Hotel, London, England, at which were exhibited a varied and high-class collection of birds: Carriers, Almonds, Short-faced Tumblers, Baldheads, Dragons, and Bars being in great force. Col. Hassard, Capt. Heaton, Messrs. Montgomery, Ord, Graham, Betty, Tegetmeier, Vauder, Meerch, Heritage, Baunton, Ford, Gresham, Jones, Whitehead, Crisp; Easton and Ford were competitors. The National Peristeronic Society will show in great force at its annual exhibition, fixed for the second Tuesday in January, 1874.

More Evils of Canadian Farming.

We lately took occasion to descant on "twin evils of Canadian farming." Unfortunately, these twins are but more prominent members of a large family. The entire tribe is "too numerous to mention." A list of them would be a formidable thing, and would probably stand about as much chance of being read as an ancient genealogy. It is a risk, perhaps, to pursue the subject further. Still, we propose to venture another article upon it, and earnestly hope it will get a patient and thoughtful reading.

This time we will take a look in-doors, where we shall find a great, lubberly, stupid, overgrown evil, in the shape of ignorance. What a dearth of books and periodicals there is in many farmers' homes. Yet there is no class of people more in need of these things, from the comparatively isolated life they lead, and the few opportunities they have of rubbing against other people, and getting hold of new ideas. In towns and cities where there is constant association and intercourse, while at business or work, an interchange of thought, and a diffusion of useful knowledge takes place by means of conversation, such as is only practicable now and then, and to a limited extent, in the country. The farmer's occupation is often a very lonely one. He ploughs all day with only his team for company. He is necessarily much alone. Now, a man that is a great deal by himself, is in very good or very poor company, according as he has trained himself to think, and has stored his mind with useful ideas, or the reverse. A reading, intelligent man can be his own companion very pleasantly and profitably, but an ignorant person will find it very dull and wearisome to be alone much. It may provoke a smile, or an expression of contempt, nevertheless, we throw out the suggestion, that the solitude of country life and country work would be very much relieved, if the habit were formed of carrying about a book or periodical, and rest-spells were improved by employing them in reading. A few minutes, while the team is taking breath, or the farmer is having a brief rest, will suffice to get ideas into the mind, which will furnish material for half a day's thinking. We have known merchants who kept a book in some drawer in which they read between whiles, when there were no customers to be served. And why a farmer should not thus fill up the interstices of his time usefully, is more than we can tell. But there are noonings, wet and stormy days, and long winter evenings, that furnish opportunity for a great deal of reading, if there be a disposition for it, and if there are books and papers within reach.

We are not sure but that all the evils that afflict our farming, may be traced to this one. "Read and you will know," is an old proverb. If our farmers would only read, they would know the impolicy of wholesale tree-slaughter, the stupidity of the skinning methods to which land, once fertile, is subjected, the importance of rotation of crops, the benefits of a mixed husbandry, the advantage of stock-raising, the value of roots, the necessity of drainage, and so forth. Not a topic of interest is there connected with farm life, but may be found discussed on the printed page. What is there of which it may not be said, "Concerning this, behold it is written in the book of the chronicles of rural affairs?" And yet how many farm-houses have scarcely a book in them, without it be one or two gaudily-gilt pictorial volumes, which some pedlar has induced them to buy with the seductive lure of credit, and the price of which is just so much money thrown away. The money spent on this gilded trash is often worse than wasted, because it creates prejudice against really good books, leading people to think the art of printing a delusion, and a snare.

A farmer can make no better investment of a little money, than in the purchase of a few useful books and papers. There is no well-conducted journal of

agriculture, which will not repay its cost a hundred fold, if carefully studied, and preserved for future reference. It is mistaken economy to avoid outlay for these things. Better far to leave the whiskey jug empty, and the pipe unfilled, than to neglect providing the mind with stores of knowledge. In fact, many throw away, in such directions as those just hinted at, far more money than would suffice to keep up a supply of good books and papers. To furnish the body with superfluities, and deprive the mind of necessaries, is assuredly to play a most foolish part.

We have spoken of rural books and papers, because these have a direct connection with the farmer's calling and profits; but there is no reason why he and his family should not be as well provided as others with general reading. What material for private thinking and social talk there is in the news of the day; what constant interest in history, science, travel, politics, religion. "Reading makes a full man," and life on a farm would be another thing altogether were habits of diligent reading formed and kept up. If we are to have an agricultural population, qualified to take a leading part in the affairs of church and state; if we are to have a better style of farming; if our country is to be elevated to a position worthy of its great advantages, as compared with other nations, this evil must be corrected.

In speaking thus, we are not unmindful of the fact, that multitudes of country homes are abodes of intelligence, and scenes of cultivation and refinement, but we are quite sure they are the exception, and not the rule. Happy, privileged places these. May their number increase 'till the land shall be full of them.

Unpatriotic Emigration Counsel.

It is remarkable how uniformly British journals and their correspondents praise up the United States as an attractive field for emigrants, quite ignoring the fact that the Dominion of Canada presents equal, and in some respects, superior advantages to any that can be offered by the adjacent Republic. As a specimen, we may cite the following anonymous communication in *The Field* of Dec. 6:—

"SIR,—Your correspondent E. D. would find the United States desirable to settle in as a farmer with small capital. A friend of mine went some years ago to New Zealand, but after a year's travelling about there returned, as he considered he would stand little chance without a capital of £10,000. He then went to Iowa, purchased a small farm, and has done very well for the last three years. My son, who was trained at Cirencester College, went out last August, he is delighted with all he has seen of the country, and has fixed on a farm of 160 acres of prairie land—good land, well fenced, with trout stream well stocked running through, comfortable house and good farm buildings. For this farm he will have to pay £900, and £400 more will stock it and make him comfortable until after next harvest. He likes his neighbors very much, for a good many Englishmen are settled near, and they are hospitable and willing to help a new comer. His market town is Dacorah. He tells me, from all he has seen, he is sure he shall like it better than farming in England or Scotland. Now, if E. D. bought just such a farm in Iowa, he would have half his capital in hand, which in the United States he could safely invest to pay him ten per cent. or more."

Will our splendid contemporary please "make a note on't," that cleared farms, equally cheap, with better land for general purposes, can be bought in this country, 800 to 1,000 miles nearer the sea-board than Dacorah, Iowa, with trout fishing at hand, "a good many Englishmen settled near," and the inestimable advantage of being still under "the flag that braved," &c. ? 800 or 1,000 miles of nearness to the sea-board means twenty-five per cent. more for wheat, the great export crop of this continent, and our average yield of wheat per acre is better than that of Iowa or any other Western State. We freely own that the prairie farmer can beat us at growing corn, or maize as it is termed in England; but that

is far from being a remunerative crop, owing to the distance and cost of transportation to Eastern markets. Amid the scarcity of fuel, Indian corn is often used in the Far West for that purpose. Fuel is abundant and cheap in the farming districts of Canada, and we fearlessly challenge competition with Iowa in any and all the respects that go to make a region desirable as a field for farming, or a location for a rural home. No doubt ignorance has much to do with the unpatriotic advice given by English journalists and their correspondents; but why, in the name of common-sense, do they not get themselves better informed? Emigration pamphlets, with well authenticated information on these matters, are plentiful as blackberries in August.

Bicycling in England.

In this country, the bicycle, or velocipede, had but a transient popularity. It was only a nine day's wonder. For a short while, people were annoyed by awkward youngsters trying to ride an inanimate charger, which they found more unmanageable than an unbroken colt, but now it is a rare thing for us to see anything of the sort. In England, the case is different. Bicycling has a department assigned to it in such journals as "*The Field*," and is not only practised as a pastime, but turned to good, practical account in taking journeys. Occasionally, we read of bicycle-riders running a race with the St. Alban's or some other fast stage-coach, and the two-wheeled vehicle generally comes out winner. Recently a trial of speed was had to test the question, "man *versus* horse." A race of twenty miles for £25 a side was arranged and carried out, the competitors being John Keen, of Sarbiton, the champion bicycle rider, and Polly, a good pony, belonging to Mr. Cooper, of Birmingham. At first, the cyclist led considerably; toward the middle of the race the pony got ahead; during the fourteenth mile, Keen again took the lead, the pony beginning to be a good deal fagged; and at the close of the seventeenth mile, the pony was led off the course, and the triumphant bicyclist was duly notified by Polly's backers that they did not require him to finish the distance. The pony was well ridden, and everything so managed as to make it a fair competition. Keen's best mile was run in 3min. 32sec., and he made the first 10 miles,—half the race,—in 37min. 11sec. Much elation among bicyclers, and a great impetus to the acquisition of their art, are among the natural results of this race. The smooth roads in England, and their excellent condition during almost the entire year, give this peculiar mode of locomotion great encouragement. Early in the history of bicycling, we remember to have seen a statement to the effect that it was liable to induce physical injuries; but we are not aware whether the statement was well authenticated, and we observe no allusion to anything of the sort in those of our English exchanges that chronicle the progress of the art.

Birmingham Fat Cattle Show.

The twenty-fifth exhibition of fat stock at Birmingham, held during the first week in December, was one of the best and most successful meetings of the kind that has ever taken place. Extra liberal prizes no doubt contributed much to this result. The Herefords, but little appreciated here, are highly esteemed in England, and formed a conspicuous class at this show. Still, they are not equal to the Short-horns as fattening cattle. The best specimen exhibited at Birmingham weighed 20cwt. 3qr. 14lbs.,—about 2½cwt. less than the champion Short-horn, two months younger. The Short-horns made a fine display. The Devons were a small, but good collection. The Long horns were far out-distanced by other and better breeds, but still seem to have their admirers, mainly for dairy uses. The Scotch Polled classes included several good animals, Mr. McCrombie again winning the highest honors. There were a number of excellent cross-bred specimens, one of these being the heaviest bullock at the show, and as such, taking the butchers' prize. Concerning this beast *The Field* remarks,—"23cwt. 3st. 6lbs., is a respectable total to pull down, although it has been considerably exceeded." Taken as a whole, the sheep department seems to have been hardly up to the usual average of

merit. The Shropshires and Oxfords formed the most attractive elements in it. The Leicesters and South-downs were weak, and the Cotswolds are pronounced by the journal above quoted, "the worst lot we ever remember to have seen." The pigs were not remarkable. A small, but very choice lot of "corn" was exhibited, and there was a splendid display of roots. Among them were a single mangold weighing 5 lbs., a lot of six weighing 14 lbs., and a single ox cabbage weighing over 70 lbs.

The late Prof. Agassiz.

Not science only, but practical agriculture, has cause to mourn over the death of the distinguished man whose name heads this article. He was no reclusive philosopher, shut up in his garret, and absorbed with his theories, but had the sagacity to perceive, and point out the bearings of science upon the affairs of common life. Among many more elaborate references to his eminent labors and services, nothing has pleased us better than the following tribute to his memory, which we find in one of our exchanges, apparently from the pen of a Massachusetts farmer:—

"The noblest man of Massachusetts—both as regards breadth of knowledge, the minuteness, and accuracy of his information, the limitless nature of his sympathies, the magnetism of his personality, and simple purity of character—has died. It is not too much to say that Agassiz was the one man that the culture of the State would have been most loth to part with; and, what is a rarer phenomenon, the merchant, the classes that throng city streets, the farmers of remote country towns, all feel that they have a common property in the general grief. On the occasion of the meeting of the Board of Agriculture, at Fitchburg, Dec. 2nd, the man who he has said he had no time to make money (when he might have made each evening render him up a hundred dollars), had time to explain to farmers the laws of animal growth. Last winter he could ride twenty miles in a sleigh, and spend three whole days in a remote country town, and hold converse with plain farmers. Each felt free, at the country inn, to ask questions; and sure was each of the kindest consideration. It was the willingness of the man to bring so much his mind—the epitome more than any other of nature—to the level of the common mind that endeared him to so many—indeed, to all with whom he came in contact. Immeasurably above the farmer—as is one who stands alone—the farmer ought to feel that he has some share in him. A member of the State Board of Agriculture—the defender of the Agricultural College, the founder of a great museum, in which, what is of practical concern to agriculture, has a prominent place, agriculture is no less indebted to the great Professor than are zoology, geology, and many related branches of physical knowledge."

The Smithfield Club Cattle show.

The *Mark Lane Express* briefly summarizes the above show in the following paragraph, from which we gather that it and the Birmingham show elsewhere reported and were "much of a muchness":—

"As stated in our last week's number, the entries this season exceed those of last year by sixty the show being numerically the largest held for many years. It is, moreover, one of the best, there being a really beautiful exhibition of Devons, which, for some reason or other, are always better represented in London than elsewhere; while the Short-horns are also in much force both for numbers and merits, there being close upon twenty more beasts of this breed than were sent in 1872. The Sussex, again, are in most respects good, it being probably the largest show of the sort ever seen at Islington; and the four prize crosses standing all in a row are all admirable; as the Extra Stock is headed by two already-famous animals, both 'first' here in 1872. The Herefords, save here and there, are not so remarkable, nor is there any great difference in the entry over that of last year, when white faces ran up to the shortest show known for some time. The most marked falling-off, however, is in the Scotch classes, which, including Highlanders and Polls, only reach in all, sixteen. The sheep show looks to be about an average for numbers, but amongst the pigs the competition is very limited, with the first class of white pigs generally commended, and Mr McNiven's champion pen of Dorsets wonderfully good; but otherwise there is not much merit, and two or three entries were 'referred' on a question of age, and the prize list consequently is incomplete.

The Manures Wasted in the Country.

This is the title of a book by M. Delagarde, recently published in Paris, a notice of which has lately appeared in the *Chemical News*. It is devoted to calling attention to the serious waste of fertilizing material that is taking place in France. Without professing to bring forward anything new to the chemist or scientific agriculturist, the author lays stress on the application of the principles that are already known, and urges upon those engaged in the culture of the soil, the value, and importance of the materials which they are every day throwing away. To those who have not considered the subject, M. Delagarde's figures are absolutely startling. The total annual waste in France he estimates, and in this he is probably not above the mark, at two milliards of francs, a sum of money amounting to \$400,000,000. And yet, in France, it is a common practice to employ night soil as a manure, under the form of a preparation known as *poudrette*. This *poudrette*, however, the author thinks, is deprived, by its mode of preparation, of five-sixths of its fertilizing value. In this country, night soil is not to any appreciable extent utilized at all, and hence our loss from this cause must be proportionately greater.

M. Delagarde estimated the average yearly value of the dejections of an adult at 28 francs (\$5.60). Supposing the average value of each person's excrement, without taking age into account, to be 20 francs, or \$4, and estimating the population of Canada at three millions, we have an annual national revenue from this source of \$12,000,000. Of course some of this is utilized accidentally, and some is designedly employed as a manure. But if we are warranted, as there seems to be no doubt, in estimating our loss in this respect, as equal, at least, to that of France, it appears that we are throwing away every year \$10,000,000. This is a serious loss, and one that demands our earnest attention, to prevent it in the future. The author considers human excrement to have more than one, and a-half times the value of sheep's dung, twice that of horse dung, and three times that of cow's dung.

The loss of farm-yard manure that is constantly taking place in the country is strongly dwelt upon. "Many persons," says the *Chemical News*, speaking of the book in question, "will be inclined to deny that any waste of manurial matter takes place in the country. They will ask, 'What can become of the excrements of man and beast, if not applied to the land?' But, before manures reach the spot where their action is wanted, they are often suffered to lie for a long time fermenting, and allowing their most valuable constituent, ammonia, 'to waste its sweetness on the desert air.' No less are they injured, in a majority of cases, by the loss of their soluble constituents, such as phosphoric acid, potash, magnesia, &c. It is something quite common, in passing a farm-yard, to notice a driblet of dark-brown liquid oozing from the manure heap, and finding its way to the nearest ditch. Hence, after nourishing the weeds along the watercourse, it ultimately flows into the same brook, and aids in the pollution of our rivers. In like manner, the village cess-pools, too often, will be found draining into the ponds and streams. Thus, though the manure is ultimately carted in due form upon the fields, it is comparatively a mere inert residue, deprived of its most valuable constituents." So much for the evil, one which is unhappily too clear, not only in France, but in our own country, and amongst ourselves. Now, for the remedy. The author proposes to check this waste by the use of portable chests, or tanks, instead of cess-pools, containing coppers (sulphate of iron), or gypsum (sulphate of lime, plaster), to "fix" the ammonia. What is meant by "fixing" the ammonia is this: Ammonia, as we know, in the free state, is a gas very soluble in water, from which solution it rapidly evaporates away. From the decomposition of all organic matter, particularly animal matter, free ammonia is evolved, as may readily be ascertained in many cases by the smell, and unless retained in some way, passes off into the atmosphere. Ammonia, however, will combine with sulphuric acid, to form sulphate of ammonia, which is a solid, and is not volatile. Hence, by forming this compound, we

"fix," or retain the ammonia. When ammonia is brought into contact with sulphate of lime, the sulphuric acid leaves the lime, and unites with the ammonia. Sulphate of iron acts in the same way. Hence by the use of either of these substances in the way indicated, this valuable fertilizing substance may be "fixed," or brought into a non-volatile form, and preserved until wanted by the plant. The contents of these chests can then, from time to time be removed, and applied to the soil. The draining of dung-hills, and urine, he proposes should be collected in pits, or tanks, prepared for the purpose, containing a suitable absorbent mixture. For such a mixture the author recommends the following composition: Eighteen bushels of dry earth, powdered and sifted, three bushels of ashes, two bushels of gypsum, and one bushel of powdered charcoal. This mixture, he considers admirably adapted for absorbing both the volatile, and the liquid constituents of excrements, and hence well calculated to prevent loss both by evaporation, and by draining away, or washing out by rain. Such a mixture is cheap, and could be easily procured.

The author also alludes to the great waste of fertilizing matter in dead animals. This is particularly worthy of our attention. Every winter there are numbers of cows and horses, not to mention cats and dogs, that die, and are buried in the snow, and which are allowed to remain packed in ice until the spring thaw releases them, to be a nuisance, and a source of pestilence to the neighborhood, while the valuable manurial substances that they contain are allowed to run to waste, unheeded. When we reflect that these animals contain those very ingredients which are of the highest value in the products of our fields, namely, the flesh and bone forming constituents, we cannot fail to see how much we lose by our culpable negligence in this particular.

The author also points out that the water in which sheep and wool have been washed, has considerable value as a manure; and the same is the case with the refuse of flax-mills. These materials are only employed as a manure by accident, and from this cause a considerable annual loss ensues.

Another source of valuable manurial material is pointed out by M. Delagarde, which is of rather a novel nature. This comprises the various species of non-edible fungi, such as toadstools, &c., which are so common in many places. He shows that these contain, in their moist state, 1.5 per cent. of nitrogen, and hence are well worth collecting as a manure. In some parts of Europe, these are very abundant. Whether in the quantity in which they occur in this country, and with the high value of labor that prevails here, they would repay the trouble and expense of collecting, is a question. He also protests against the burning of straw, by which, he says, its nitrogen is dissipated, and its mineral constituents thrown into a less available condition.

The losses treated of in the work are worthy of serious consideration, for, although individually, they may be of a trifling amount, yet "in the course of a year, and over the extent of a whole country," they cause the loss "of sums of national importance."

A Highly-favored Journal.

The *Country Gentleman* in its closing number for the year, calls attention to the index, and states that "it will be found to include over eight hundred different writers; and this, we should add, is to the exclusion of the signatures of a great mass of minor correspondence, such as brief enquiries, weather notes, &c., so that if made absolutely complete in these respects, it might have been swollen to nearly double its present dimensions."

This is a happy state of things, and we congratulate both editors and readers in view of it; the editors, because it is evident that they have a most intelligent constituency, and the readers because of the interest and instruction they must derive from so varied a communication of actual experience relative to farm-work. Putting correspondence into proper shape for the printer, is no small editorial task, but it is a labor of love which no conductor of an agricultural journal will grudge, and we can only say, we sincerely wish we had more of it. Many who have excellent, common-sense ideas, hesitate to commit them to writing, because they are conscious of deficiencies in the composition, but editors are only too glad to supply these, for the sake of having a good miscellany of original contributions.

Editorial Items.

THE late celebrated Robert Hall one day was a hearer under an aspiring and vain-glorious preacher. The young man had been descending to little purpose on the red horse, the pale horse, the black horse, and the white horse of Revelations, and Mr. Hall, having been quite wearied, pushed his way out as the congregation dispersed, exclaiming—"Let us get out of this horse fair."

SPEAKING OUT.—At Bodmin, Mr. R. Oliver said that though they had spoken against pampering, the judges had given the first prize to a pampered animal. Having tried both plans, he was convinced that high feeding was neither profitable to a farmer or to a butcher.

The Farmer (Scottish) lets itself down, and shows a stupid want of appreciation of the great movement going on among the agricultural laborers of England, by writing very contemptuously of Mr. Arch and his mission, under the caption of "The Modern Wat Tyler." Our contemporary had better freshen up his knowledge of English history, and when he does this, he will be puzzled to find any points of resemblance between Mr. Arch and his alleged prototype.

Are there no good stock artists in England? A miserable caricature of St. Duchess of Geneva (the \$40,600 cow that was), appears in *The Farmer* of Dec. St. Mr. Page must pay a business visit east of the Atlantic, and teach our friends there not only how to auction short horns, but how to delineate them.

Ontario Veterinary College.

The students in this institution were examined by the regular Board of Examiners, at the Agricultural Hall, on Thursday last. The following gentlemen passed their final examination in a creditable manner:

John P. Bond, Toronto; Robert Baird, Brucefield; Richard McKenny, Michigan, U. S.; James Charlesworth, Clinton, Benjamin Holmes, Erin; William Brady, Tilsburg; Louis O'Leary, Duffin's Creek; Henry Smith, Whitechurch; John Nott, Brussels, Ont. These gentlemen are third year students, and, being complimented by the Board, were awarded the Diploma of the Agricultural and Arts Association of Ontario. The Board of Examiners comprised Messrs. Hagyard, V. S., Galt; Wilson, V. S., London; Sweetapple, V. S., Brooklin; and Thorburn, M. D., Toronto. The classes will recommence on Monday, the 12th January, 1874.

We may add that each successive session of this important and useful institution adds to the opinion of its worth, and the number of students is a guarantee that the requirements of such a class of professional men are far from being exhausted. We have to congratulate Dr. Smith, the Principal of the College, on the success of the institution.

Birmingham Dog Show.

A highly successful dog show has recently been held at Birmingham, which is reported at great length in our English exchanges. The dogs were divided, as usual, into sporting and non-sporting classes. Among the former, the most conspicuous were the deer-hounds, fox-terriers, pointers, setters of all kinds, retrievers, and spaniels; while among the latter, the mastiffs, St. Bernards, bull, smooth-haired and black-and-tan terriers, Pomeranians, Bedlington, and Dandie Dimmons, were prominent. Accommodation was provided for 344 dogs, and some of the classes are described as having been "terribly crowded." This exhibition was held under the auspices of the Curzon Hall Society, which has a rival in the Kennel Club, whose show is held in the Crystal Palace at Sydenham. There is keen competition, and a spirit of rivalry, which displays itself in petty jealousies, between the two English canine associations.

Correspondence.

Mistakes in Connection with Agricultural Shows.

(To the Editor of the CANADA FARMER.)

SIR:—As the funds at the command of even the most thriving of agricultural societies, are never too abundant, I hope you will not think I am an opponent of agricultural progress, because it is my intention to call your attention to cases in which it seems to me that various societies have, at the recent fall exhibitions, expended their funds injudiciously.

I will just mention the practice of giving prizes for grade male animals, which I consider an error of the most serious kind, and I believe that so far from offering any bonus to good-looking grade males, the keeping of such entire animals ought to be discouraged in every possible legitimate way, by all who profess to feel an interest in agricultural improvement. This would be done without depriving their owners of their share of reward and credit, if as liberal prizes as possible were offered for fat grade stock of all kinds, from which all pure bred animals ought to be rigidly excluded, and it would be only fair to allow the grades to compete for an extra prize, to be awarded to the best fat beast at the show.

There is not the same objection to giving prizes to cross-bred female breeding stock, even in the fertile and wealthy districts, in which the breeding of pedigree stock is fast becoming an industry of acknowledged importance. The majority of the farmers are obliged to breed from grade females, and I think it is very probable that there is not, all Canada over, one farmer all of whose breeding stock are of pure blood, while in the newer, and more remote and backward settlements, the farmers are so poor that it is only through the agency of a local agricultural society, that even a male animal of pure breed is procurable. In these backward districts, and even on farms where a more enlightened practice ought to be followed, the saving entire of tolerably good-looking males, is far too prevalent, although there is nothing about stock-breeding more certain than that the substance and kindness of such stock, will not be inherited by their offspring.

It seems to me too, that the holding of very small local shows, is another too common, and very great mistake. At the Pumpkinville show, lately held, prizes to the amount of rather more than \$50 were offered in sums varying from \$1.50 down to 20 cents. Probably the expense of hand-bills, and advertising, brought the total expenses of getting up the show to at least \$60. The show resulted in the exhibition of the following stock and produce:—Three or four hardy-looking little mares, with foals at foot; four or five one, two, and three year old colts, and fillies; the whole lot of them light, and rather leggy; four or five yokes of very lean, working bullocks, that had neither size, shapeliness, nor well-matchedness to recommend them; half-a-dozen milking cows, very low in condition, as some folks say *milking cattle always ought to be*; the two prize-takers were compact, low-set, and hardy-looking animals, but they both had very coarse and meaty udders, and, I think, one of them had lost a quarter; three bulls, small and ugly, and of no particular breed, perhaps one of them had some Ayrshire blood in him; a pen with two sheep in it; one ram in another pen; a small black boar—he was lengthy, but he had a very light fore-quarter, and looked like an animal with a very tender and delicate constitution. I heard him called a Berkshire, but a Berkshire pig he certainly was not, there was perhaps a cross of the Essex in him; in another pen were two coarse, and very ugly pigs, decidedly inferior to the average pigs of the district; in another pen, a good, and very luscious breeding sow, probably three parts Berkshire bred; finally, one or two starved-looking heifer calves. There was also a sample bushel of oats, not true seed; a sample of good bright peas, rather truer than the oats. I think there were but two samples of wheat, one spring, and the other fall wheat. There were also on exhibition six of the very ugliest turnips I ever saw; some small beets,

the tops of the roots all overgrown; there were some very ugly carrots—they were rather small, and although not forked, they had branch rootlets bigger around than knitting needles; there were six parsnips, even uglier and more scabby-looking roots than the carrots; there were three or four exhibits of cabbages, firm-hearted, but rather small, even the best of them were not really fine vegetables; there were some rather poor samples of onions; the few potatoes shown were really good ones, most of them were well grown, clear-skinned, and bright-looking roots. Besides the articles already mentioned, the ladies had sent two loaves of light bread, three lumps of clean-looking butter, one cake of very yellow beeswax, a small jar of honey, some quilts, and a few other articles of domestic manufacture.

Now, though the Pumpkinville cattle are but a very sorry-looking lot, their pigs are of fair quality, and their sheep are nice, level, useful-looking animals, that yield both mutton and wool; and the introduction of successive well selected thorough-bred boars, or rams of the same variety, would soon raise many of them to a standard of excellence that would be highly creditable to the stock-holders of the district. And if the money the society wasted, I say worse than wasted on their show, could have been added, and the value of the time lost by the farmers, and others, their families and their teams, in attending the show, the total sum would have sufficed to purchase, and bring into the district, a really useful pure-bred bull, and conferred a lasting benefit on the farmers of the whole district. Even the \$60, or so, wasted in getting up the show and the prizes, would have produced either a good boar pig, or a pedigree ram, and that kind of stock being a thrifty, useful sort of animal the smaller outlay would, perhaps, have produced the most immediately noticeable improvement, and the earliest pecuniary advantage.

Now, Mr. Editor, I venture to suggest that it would be well for the very small agricultural societies to hold no local shows at all, but to expend their funds on the introduction of new seeds, and varieties of grain likely to succeed in the district, and on the occasional renewal, from not too dissimilar soils and climates, of seed of old established, and well proved soils. They ought also, as soon as possible, to commence the improvement of their live stock, beginning whenever possible, with the soil that stands in the greatest need of improvement. As the boarding-out system has been almost invariably proved not to answer, it would be a good plan to put up the animals as soon as brought home, to the competition of the club members, the buyer undertaking to receive a certain number of females from each other club member, at a certain fixed price, and being allowed the privilege of charging non-members a higher rate on their stock, or for all female stock sent by club-members in excess of their proper quota. The buyer (as he might get his animal very cheap indeed) ought to give bond and good security that he will retain the animal in the district, and keep him fit for breeding from, and also undertake, that when tired of him, or from lapse of time, in a measure, obliged to part with him, that he will again put him up for sale to the members of the same society, from which the animal was originally purchased. The difficulty of procuring the services of competent judges is a very serious one, even in the well-settled townships, and in the thinly-settled districts they really cannot be found, and there are no funds available for importing them from other districts.

Minden, 1873.

PHILIP.

Our Native Orchids.

This peculiar and beautiful family of plants is tolerably well represented in Canada. They form an excellent example of the mutual dependence existing between the vegetable and animal kingdoms.—When the flower is examined, it is evident that the only way in which most of the species belonging to this order can be fertilized, is by means of receiving the pollen adhering to the wings and legs of insects. Thus we see that while the honey-seeking insect obtains its supply of food, it at the same time completes the final process necessary to the continued existence of the plant. Among the specimens in my collection obtained in this neighborhood are the following:—*Orchis spectabilis*, *Isaberrara fimbriata*; *H. phycodes*, *H. blephariglotis*, *H. ciliaris*, *H. virgata*, *H. viridis*, *H. dilatata*, *H. Hookeri*; *Calopogon palustris*, *Cypripedium arifolium*, *C. pubescens*, *C. parviflorum*, *C. spectabile*, *C. acule.*

Almost all of these species grow on the boggy margin of the small lakes existing in this region.

Mr. McDonald had so well said on the subject. Ho The show of Orchis and purple-fringed species (*O. spectabilis* and *H. fimbriata*) are remarkable for the beauty of the three or four purplish flowers borne on the spike; the former, unlike the latter, prefers the wooded hillsides. The white fringed species is delicately scented and is susceptible of cultivation, as, notwithstanding its habitat in low grounds, it flourishes well in the common flower-pot when properly watered. The beautiful little Calopogon is found in the wettest portions of the bog, along with the round-leaved sundew. The structure of the flower in this genus affords an interesting instance of the adaptation of means to an end in nature. The pollen, instead of being connected by threads with a sticky gland for the purpose of adhering to the stigma, as in the other genera, consists of loose powdery grains. In order that these grains may adhere to the stigma, it is broad and flattened at the apex and covered with a beautiful array of white, yellow and purple hairs with club-shaped ends. The stemless lady's slipper (*C. aculea*) is a delicate little species growing in the shade in moist ground and is closely allied to the two cultivated species *C. insigne* and *venustum*. It bears only a single flower of rose-tinted purple color, and is far more rare than the coarser yellow flowered-species.

Owen Sound, Dec. 15th, 1873. C. M. P.

Omission Supplied.

(To the Editor of the CANADA FARMER.)

SIR—I notice an omission from my article on "Varieties of Soil" as published in the number for 15th Dec. The particular proportions of No. 3. are not included. In case the omission should have occurred in the MSS., I send you the details, which please have the kindness to publish in your next number.

I remain, yours truly,

C. M. SMITH.

Owen Sound, Dec. 24, 1873.

No. 3. Cultivated Soil.

Silica.....	680	grs.
Alumina.....	60	"
Lime.....	51	"
Magnesia.....	6	"
Oxide of Iron.....	25	"
Potash.....	4	"
Soda.....	2	"
Phosphoric Acid.....	6	"
Sulphuric Acid.....	2	"
Carbonic Acid.....	40	"
Organic Matter.....	107	"
Moisture.....	9	"
Loss.....	5	"

Total..... 1000 "

[NOTE BY ED. C. F.—The article referred to by our esteemed contributor, was printed exactly according to MSS., copy.]

A BIT OF ADVICE—Our Arlington correspondent, by availing himself of our advertising columns, will, no doubt, obtain the information respecting the particular breed of fowls and eggs desired. They may be procured either in Canada or the United States.

Mr. Lewis F. Allen, Buffalo, editor of the American Herd-book, announces that he will receive pedigrees for the forthcoming 13th volume of that work until January 1st, for bulls, and until February 1st, for cows.

TO CORRESPONDENTS.—Our friends who kindly favor us with original communications, will oblige by writing in a good bold hand, on only one side of the sheet, leaving room between the lines or in the margins for any necessary alterations or corrections. Such matter, marked on the envelope, "Copy for the Printer," and left unsealed, goes through the P. O. at one cent per ounce.

Agricultural Intelligence.

Township of Hamilton Farmers' Club.

At the last meeting of the Township of Hamilton Farmers' Club, the subject for discussion was, "The benefit of a Farmers' Club, and the best method of conducting it."

Mr. Alex. McDonald, who had been appointed to introduce the subject, said, "Mr. President, and gentlemen, I feel sorry that the task of introducing the important subject chosen for discussion to-day has not devolved on some member of our club more able to do it justice than I am. It is a great, and obvious truth, that the farmer has not the same conveniences, opportunities, and facilities of daily intercourse, communications, and comparison of knowledge and opinions as the followers of commercial or manufacturing interests have. The latter naturally congregate in towns and cities, and their sympathies, feelings, and opinions, circulate like electricity immediately through the whole body to their mutual advantage, encouragement, and success. But how is it with the cultivator of the soil? At home, separated, distributed among a thousand rural fields, each attentive to his own acres, they have only occasional opportunities of meeting and communicating with each other. The duties of the farmer are varied, intricate, ever changing, dealing in trial, experiment, and new endeavor, coping with nature in every mood, and often witnessing results involving mysteries of which no research has discovered, or philosophy explained the cause. This experience is beyond price to the whole community, and he is called upon by the noblest of influences to meet his neighbors in social converse, learn his method of operation and its results, keep himself interested in his occupation, and posted in everything pertaining to his profession.

The follower of no other calling is so liable to fall into narrow, dogmatical habits, keeping on unchanged from year to year, until they mark his identity as surely as his own physiognomy, and chains him a slave to routine, in thought, sympathy, action, impulse, observation, and labor. It is here the farmers' club comes to assistance, and shows its benefits. He can there meet his brother farmers in a free, easy, and candid interchange of ideas and opinions for the general good, and impart and receive information to their mutual advantage. The only difficulty connected with these institutions is to get farmers together, as a body, to think, and act in concert. I cannot account for their apathy and indifference in patronizing and supporting them, as their object is to encourage and support agriculture in every possible way. It can be readily seen that by their means much valuable information is diffused, different modes of cultivation compared, and their results ascertained, improvements suggested, and made public, and such thoughts, opinions, and observations elicited, as cannot fail to exercise a beneficial influence on all concerned. Such meetings stimulate to reading and thought, and their record through the medium of the press awakens attention, and diffuses intelligence through the whole community. They tend to soften the farmers' prejudices, increase his knowledge, and improve his manners, and it certainly behoves everyone to do his best to strive to improve his own position, and also that of his fellow-men. In conducting a Farmers' Club, a simple organization only is necessary. A President, Secretary, and two or three managers might comprise the officers. The subjects brought before the club, to be introduced by some member of it, or such other person as the managers may think fit to select; the discussions to be conducted with as little formality as possible, and every available means taken to improve their efficiency, and increase their usefulness.

Our club meets regularly once a month during the winter season, and we cordially invite everyone to join us, free of expense. It has been our earnest aim and endeavor to make our meetings as interesting and useful as possible, and, although we have not accomplished so much, or received such an amount of support as we could wish, yet I am fully persuaded that our time and trouble has not been altogether thrown away."

Mr. Carruthers said, "He could add little to what

was of opinion that it was desirable, and for the advantage of the farmers of the township that the club should be carried on; and was sure that it must be very discouraging to those who took the trouble to get up the opening address to see so small an attendance. It must be from want of thought that so few attended. If they got up a good, lively discussion now and then it would create more interest in their meetings. He was sure they all might spend an hour or two more unprofitably than in attending a meeting of the Farmers' Club."

Mr. T. A. Pratt said, that "farmers had not the same advantages as townspeople had, who got the news, and saw each other every day, whereas farmers would not see each other oftener than once a week, if as often. He thought that if the club would get up a regular subscription list, and charge so much for its membership, that their meetings would be better attended. What people got for naught, they put little value on, and besides, if they had some funds, they could secure speakers from a distance, occasionally, to introduce a subject, and stir us up."

Mr. J. Russell said, what he thought "a Farmers' Club was very useful for an exchange of ideas, and that, if it was really taken hold of in earnest, it would be for the benefit of all. If he had not attended many of their meetings, he could say that he had read all their reports with great pleasure, and he hoped with some profit, as they were generally very interesting. He could, he thought, express himself much more freely if it was not for their secretary sitting there jotting their sayings with his pencil, which he might put in print. One great drawback to all the Farmers' Clubs was that farmers had so much to do at home that they could not find time to attend the meetings."

Mr. Pratt, President, in summing up, said that he thought "the present subject had been very well introduced to the meeting, and that he had little to add to it. Though the club had not succeeded as well as he could have wished, he was convinced that they had really done some good by their discussions, even during the past year. He believed that he had been at every meeting of the club for the last twenty years, and he thought he had reaped some benefit from them, as he heard different methods of working, or raising crops, and was led to try them. He did not know any better method of conducting a club than their own; to have a President, Secretary, and two or three Directors. A great deal depended on what sort of men they put in these offices. They wanted, if the club was going to succeed, to be active and energetic. As they were now going to elect their officers for the ensuing year, he would say, to elect suitable men. It was a great mistake to put people in positions that they were not qualified to fill. For his part he had done all that lay in his power to make the club beneficial to all concerned. He regretted that so few came to these meetings, and thought if our farmers took proper interest in the matter that they would find time to attend the meetings."

The following are the officers elect for 1874:—Mr. Alex. McDonald, President; Mr. Walter Riddell, Secretary; and Messrs. J. Russell, J. C. Carruthers, and T. A. Pratt, Directors.

WALTER RIDDELL, Secretary.

Baltimore, Dec. 20th, 1873.

"Triumph" for Short-horns.

Those who have been in the habit of reading the London *Mark Lane Express* will not need to be reminded that it has never been prodigal of compliment for Short-Horns. Its comments on the Smithfield show just held, reach us as we go to press, and come with unusual force in view of the foregoing fact. Its leading editorial, written before the prize awards were announced, opens thus:—

"As a good butcher's beast, there can be no question but that the Short-Horn will this morning have to encounter a far more severe trial than he hitherto has done. One of our most experienced judges, Mr. Sanday, has told us that the Short-Horn ox, for beef of really prime quality, is by no means so valuable an animal as he once was; and yet in the face of this, the Champion Plate has since its establishment at the Smithfield Club, been won three times out of four, up to the close of 1872, by a Short-horn. It has been, however, continually urged that this award has never depended so much upon actual merit as on certain preponderance of partiality or prejudice. Thus, until very recently, while one bench included a Devon, a Hereford, and another odd man, the judges who undertook Short-horns, Scotch, Irish, Welsh, and cross-breds were commonly all Short-horn fanciers; although this majority, as we have shown before now, was never warranted by the number of entries. There was, accordingly, something very like a working majority to begin with, unless,

as happened last year, an odd man held out for his own sort or opinion, when another breed won. But this year the system has been more thoroughly reformed by the appointment of another set of judges; when, as usual, that the two who take Short-horns, Irish, and crosses have all Short-horn instincts, there will be instead of three other good men to try final conclusions. If then, under such revised conditions, the Short-horn can still be returned as the Christmas Champion, the triumph will carry far more weight with it than when achieved on the currier's argument as to there being nothing like leather."

On the next page we find the awards themselves, of which the ones which indicate a triumph as the "Christmas Champion," are these:—

CUPS.

For the best steer or ox in any of the classes—Silver Cup, value £10, to J. S. Bult, Kingston, Taunton, for a Short-horn.

For the best heifer or cow in any of the classes—Silver Cup, value £10, to J. Walter, M.P., Bearwood, also for a Short-horn.

It will thus be seen that the breed has held its own, in a contest where failure would have been no disgrace, and before a jury which, according to our contemporary, could certainly have no bias in its favor.—*Country Gentleman.*

A Valuable Invention.

The Boston calamity has brought into prominence an invention which has been tried with great success in Chicago. It consists of an iron shaft, extending either over a single window or the entire length of the building and on all sides, as may be desired, and secured in the cornice, entirely hidden from view. Upon the shaft are coiled flexible wire rope ladders, of sufficient length to reach the ground. In this drum, upon which the ladders are coiled, is a sheave, through which passes a single wire rope, with hooks at each end, which unfolds with the ladder, both ends reaching the ground. To operate this machinery, a box similar to the fire alarm boxes is placed in any part of the building on the outside, where a policeman can have access (the fire alarm box keys fitting their boxes), or in the office of a hotel. When an alarm of fire is given, the box is opened and the lever presenting it is pulled. This releases the break that holds the shaft, and the ladders descend slowly in front of every window in that house; so that in case of fire the occupant of a room in the eighth story of a building may step from his window on to the ladder, with his back to the wall, and descend in safety to the ground. The fire department arrives upon the ground; one end of the wire rope is hooked to the hose and the other to the hose cart, and in less than five minutes' time the hose is on the top of the house; the firemen ascend the ladder to the roof, or to either story, as the case may require, and play their stream on the fire, without waste of time or water. And this may be done from the outside of the building, without opening a door or window on the ground floor. The ladder remains intact and serviceable as long as the walls stand. For saving life and valuables this machine is especially adapted. As the ladder and shaft can sustain a weight of from 7,000 to 50,000 pounds, anything from a piano to the smallest article can be lowered upon it. In hotels, or buildings occupied for offices or sleeping-rooms, a stout web strap is provided to be strapped around the breast under the arms—of an invalid or timid person, unwilling to descend the ladder, to which is fastened one of the hooks in the end of the hose elevator—while the other is held and controlled by parties on the ground below.—*Am. Manufacturer.*

UNDER date, October 7th, the New South Wales correspondent of the *Times* says:—"The pastoral and agricultural community are in good spirits; all looks well for a good year. The scarcity of cattle will cease, now that the spur of high price is felt. We are looking very leafy, the deciduous trees are just out, and beautify the landscape with a delicious green. The gums wear a tired air, as though fatigued with unrelieved service."

MR. JOSEPH ARCH, the President of the Agricultural Laborers' Union, has had an interview with Mr. Gladstone. According to a correspondent of the *Leeds Mercury*, the interview was at the Premier's request. Mr. Arch narrated his recent Canadian experiences, and informed Mr. Gladstone that the only way to stop the threatened exodus of laborers from this country, is to concede household suffrage in counties, and to induce land-owners, by legislation, or otherwise, to improve cottages, and grant leases of two or three acres of land on the same terms as are given to farmers.

Agricultural Chemistry.

Artificial Manures.

Although farm-yard manure, as it is the earliest, is also, for general purposes, the most valuable among the means of restoring exhausted lands, or improving unproductive soil. There are many other substances which, under special circumstances, are of great benefit to the farmer in this respect. These are classed under the general name of artificial manures.

Artificial manures are intended to give to the soil some particular ingredient of plant food of which it stands in need. To comprehend their value, we must bear in mind the important fact that the fertility of a field is measured by that ingredient which is present in the smallest relative quantity. Suppose, for example, that a soil contained an abundance of every kind of plant food, except phosphoric acid, but was deficient in that substance. It is clear that such a soil would produce good crops, just as long as the supply of phosphoric acid lasted, and no longer. When that was exhausted, although it might be admirably adapted in every other respect to support plant life, it would become for all practical purposes, a sterile soil. Or, suppose that the phosphoric acid was not absolutely deficient, but that the crops raised on the field required a greater relative amount of that substance than of the other constituents of the soil, then the same results would follow. The length of time for which the field could be made to produce remunerative crops, would depend entirely upon the question how soon the phosphoric acid would be exhausted. The same holds good of every other constituent of a fertile soil. In the example just cited, if we add to the land some substance containing phosphoric acid, we can prolong this period almost indefinitely. By so doing, we place the deficient element on a par with the rest; and in this instance, by adding a single ingredient, we convert a barren into a fertile soil. It is important, in this connection, to note that the soil need not be absolutely wanting in any one ingredient to render it unproductive. The absolute quantity of that ingredient in the soil may be far more than enough to supply the wants of any one crop, or even of a succession of crops; and yet, if this ingredient is present in a farm in which it is incapable of being absorbed by the plants, or if it is so diluted and disseminated through a large quantity of soil, that the roots of the plants are unable to absorb it quickly enough to supply their wants, the result will be the same as if there was actually an insufficient quantity of the substance in question in the field. In all these cases, this ingredient must be added to the soil, if it is to continue to bear remunerative crops.

It is quite true that this deficiency may be supplied by the use of farm-yard manure; but in farm-yard manure, the more important ingredients exist only in very small proportions, and are largely diluted by inert substances. Fresh dung, for example, contains about 66 per cent. of water, and rotten dung about 75. To a certain extent, also, farmyard manure reflects the character of the land from which it came. As a general rule, the manure of animals fed on the produce of land, deficient in any particular ingredient, will be deficient in that ingredient itself. These considerations make it advisable in a case of this kind, to add the desired substance itself, either in a pure state or as some compound containing a large per centage of it. This is the object of most artificial manures. By supplying to the soil in a concentrated form the particular elements of which it stands in need, they not only preserve the fertility of a productive soil, and restore that of an exhausted one; but they even may, when judiciously employed, be the means of rendering productive a soil that is by nature barren.

We must bear in mind that in adding farm-yard

manure, we are only restoring what has been taken from the soil. If all the straw and all the droppings are brought back to the land, if the manure is so well stored that not a particle of any of its valuable constituents is lost; if no grain is sold away from the farm; and if the cattle do not increase in weight or in number, then we have only maintained the balance. But as far as the ash constituents at least are concerned, we have added nothing.

But this state of things can never occur in practice. It supposes all the work of cultivation, the laborious work of ploughing and sowing, reaping and gathering into barns, to go for nothing, to be expended for no object, and to bring in no remuneration. In order to gain profit from his land, the farmer must sell some of his produce, either in the form of grain or other crops, or as live-stock; and in so doing, he sells so much of the valuable portion of his land, and unless some means are taken to restore what is lost in this way, the land must deteriorate. We have dwelt much on this point in former articles, because it forms the key-stone of scientific agriculture, and the vital importance of the subject must be our excuse for once more illustrating it, and insisting on it here. Let us then look for a moment at what is requisite for a perfect system of agriculture, a system which may be carried on indefinitely without any deterioration of the soil. Suppose a farm to consist of three fields, one of which is sown with grass, the second with turnips, and the third with wheat. Suppose that the wheat is threshed, and the straw used as bedding, and fodder for cattle, and the grain consumed by the farmer and his family, suppose the hay is fed to horses, and the turnips are employed in fattening cattle, which are also eaten by the farmer. Then if all the bedding, and droppings of the horses and cattle, and all the solid and liquid excrements of the farmer and his family are returned to the land as manure, everything taken from the soil by the crops will be restored to it, and such a system of husbandry would be self-sustaining. But if any of the constituents of the manure heap are lost by washing away by rain, &c., or if any of the grain, hay, or turnips are sold, the soil will lose in that proportion, and will require to have this loss made good in some other way. There are two ways of supplying this loss. One is the method followed in China and Japan, and consists in the careful preservation of every kind of dung and ordure, liquid as well as solid, the product of cities, as well as of the country, and its restoration to the land. The other is the use of artificial manures. The latter has of late years played a most important part in the agriculture of Europe, and the United States, and is becoming every year better understood, and more thoroughly appreciated.

There is in many quarters a prejudice against the employment of artificial manures, and this arises partly from the exaggerated expectations of some of their advocates, and the ignorance and want of judgment with which they have sometimes been used. In order that benefit may be obtained from the use of these fertilizers, it is absolutely necessary that they should be used intelligently, with a knowledge of what may, and what may not be expected from them.

First, then, they are not intended to supersede the use of farmyard manure. This will be evident from what has been said above. They are intended to supplement, not to supplant that indispensable article. To expect artificial manures to take the place of the product of the barn-yard, would be like giving a man who complained that he had not enough salt in his porridge nothing but salt for his breakfast. The porridge without the salt is not sufficient, but it is far better than the salt without the porridge. Artificial manures are designed to make up for the loss, or to supply the deficiency of one or two particular constituents of plant food. Farm-yard manure supply them all. But farm-yard manure, under our present system at least, does not supply enough, and artificial manure steps in to supply this deficiency.

Then, again, artificial manures must not be applied indiscriminately, and the same results must not be expected in all cases, because a certain artificial fertilizer has proved useful in one place, it does not necessarily follow that it will be equally beneficial in another. Judgment must be exercised in their selection, and in their employment. Their value depends on their supplying to the soil some element in which it is deficient. The plants can only absorb a certain quantity of each ingredient, and hence an excess of any one will not only be useless, but may be positively injurious. In selecting a fertilizer, then, we

must consider the composition of the soil, and that of the crop to be raised. Those substances may be profitably added that are either deficient in the soil, or are largely required by the crop. Another point claims attention here, and that is that the inevitable deterioration that is the fate of a soil from which more elements of plant food are taken than are restored, cannot be prevented by any improved mechanical methods of farming. The evil day may be postponed by these means, but the ruin, when it does come, will be more complete. Draining, deep ploughing, subsoiling, and a judicious rotation of crops, are by no means to be neglected. They are of the very highest value to the farmer, and if carried on in connection with a proper system of manuring, will produce the best results. But they will not do alone. They are to the plant what fresh air, and exercise, warm clothing, and dry and well-ventilated houses are to the human being—highly conducive to health and good digestion, but utterly incapable of supplying the place of food. The usefulness of each of them depends on the assistance it gives to the plant in absorbing the nourishment stored up in the soil. They give nothing of themselves. Draining removes excess of water, admits air, promotes warmth, and assists the action of manures. Ploughing breaks up the soil, and renders it suitable for the growth of plants, admits the air, and allows the roots of the growing plant to penetrate freely in all directions. Deep ploughing and subsoiling increase the depth of available soil, and in addition to their mechanical benefits bring into play the important mineral constituents of the deeper layers, and thus increase the available capital of the farmer. By a rotation of crops the land is prevented from being too quickly exhausted of any one constituent, and the deep roots of one plant are made to bring to the surface food which can be afterwards appropriated by another, whose roots do not penetrate so deeply. But all these add no mineral constituent to the land. They increase the vegetable constituents, the quantity of decomposing matter yielding up water, ammonia, and carbonic acid, but they do not increase the total quantity of ash ingredients; and if any one of the ash ingredients fails, the soil will cease to produce remunerative crops, no matter how much of the other materials of plant food it may contain.

From these considerations we see the great importance of the subject of artificial manures. In subsequent articles we intend alluding to these manures in detail.

Nature's Laboratory—(Continued.)

Vegetable Manures.

This class of manures although containing a large amount of mucilaginous, saccharine and starchy materials, includes a great excess of fibrous and insoluble matter which must necessarily undergo a chemical change before it can be assimilated. In order to bring about such change, the presence of the former class of bodies is necessary, or at least some substance which is susceptible of that change in the constitution of its atoms called fermentation. An instance of how little tendency the fibrous or woody portion of vegetables has towards decomposition is afforded in the composition of peat.

If one part of barn-yard manure be mixed with three parts of peat-earth, the fermenting process is communicated to the earth and its materials brought into a soluble condition. The chief products of vegetable decomposition are carbonic oxide, carbonic acid, various compounds of carbon and hydrogen (hydrocarbons, acetic acid (vinegar), and where albumen and gluten have been present we find volatile alkali. Another mode of inducing the necessary change is by the action of lime, which abstracts the elements of water, and leaves the carbon, hydrogen and nitrogen under such conditions as are favorable for their union with other elements. It is thus seen that the most generally applicable mode of applying these manures is in the form of composts; excepting where the material is green and succulent, in which state it is readily fermentable and may be incorporated directly with the soil as in the process of ploughing under clover, buckwheat, &c. Among substances included in this division are such as leaf-mould, peat-earth,

*Albumen and gluten are substances containing carbon, hydrogen, oxygen and nitrogen. Gluten is that substance left after extracting the starch from flour by water.

tan-bark, saw-dust, wood-shavings, straw, stable-litter, &c.

Mineral Manures.

Mons. Ville's experiments have shown that the cereals require chiefly the nitrates; that potash is necessary for the growth of peas, beans, clover, &c.; and that roots require the phosphates. His perfect manure is composed of 352 lbs. each of phosphate of lime (bone-ash), and pearl-ash, 132 lbs. of quick-lime and 488 lbs. of nitrate of soda (Chili salt petre); forming a quantity sufficient to fertilize one acre of barren sand. The principles governing the application of these have already been briefly explained. It may not be amiss to remark concerning the valuable artificial manure now largely used, namely, super-phosphate of lime, that the proportions of the various ingredients in a good specimen are, according Prof. Croft, those mentioned below:—

Salts of ammonia	10
Soluble phosphate	13
Animal matter	20
Bone phosphate and sulphate of lime	40
Water	17
	100

It is absolutely necessary, in order that the farmer may not be disappointed in results, that he should either obtain this fertilizer from a reliable manufacturer, or make it himself according to the following simple plan:—"The bones are pounded into a coarse powder, then put in a boiler, with a little water, steamed for half an hour, and removed to a half a barrel or other convenient vessel; then to every cwt. of the dry bones add 50 lbs. of good oil of vitriol diluted with a third of its bulk of water; the mixture is stirred daily for a week, after which it is mixed with its own bulk of water and poured on a quantity of hen manure placed on an earthen floor, the compound thoroughly mixed; a barrel of charcoal dust, dried earth or peat is then added for every 20 lbs. of bones, again mixed and allowed to heat, after which it must undergo the process of mixing and heating sufficiently often to convert it into a dry powder." This particular mineral manure is especially recommended for its beneficial effects on root crops.

Soot.

This substance contains ammonia, carbon and a certain oil; and is therefore applicable to corn, wheat, &c. Some writers have asserted that if the seed of Indian corn be mixed with this substance and ashes, it is not so liable to be affected with smut. But it seems more probable that the growth of the fungus, or rather its development, depends on a lack of vitality in the plant from some cause, and, consequently, there is afforded a resting place for the spores in the same way as other fungi are produced on decaying trees and logs. If this is the case, the soot can only act like other manures in stimulating the growth and vitality of the corn, thus giving it a greater power of resistance against the intrusion of the *puccinia*. In order to make a successful application of the mineral manures, the agriculturist must have an approximate idea of the natural composition of his soil, as well as a knowledge of the particular elements necessary to and exhausted by each kind of crop; and the want of such knowledge has been the cause of the numerous failures in attempting to make a profitable application of these. On the other hand in applying barn-yard manure and its various composts, he cannot fail to supply the materials necessary; for such manures possess all the elements which assist in the formation of the root, leaves, stem and fruit.

Composts.

It is only within the province of this article to mention the main principles governing the manufacture of these mixtures which constitutes, as it were, the *brief-tea* for the sick and exhausted land. These may be stated as follows.—*The insoluble and fibrous portions of the vegetable portion of the mass is to be rendered soluble by ensuring fermentation, the liquid portion is to be absorbed by muck or loam, and the volatile compounds (ammonia) retained by the use of lime and protecting from exposure either by sheets or a covering of earth.* The most economical modes of manufacturing the best composts have already been described in former numbers of this journal.

This brings the list of plant-foods, natural and artificial to a close; and, in the succeeding articles, it is intended to give a brief description of the chemical changes and combinations taking place during germination, and the development of the perfect plant.

Entomological Department.

Orchard Insects.

The following valuable article recently appeared in the *New York Weekly Sun*; though we have often brought the same matters before our readers, we feel that an annual repetition is by no means too much, in order to render every farmer a gardener—every individual, indeed, who possesses an apple tree, perfectly familiar with the chief insect enemies he has to contend against. For such a purpose, it is often better to quote the descriptions of another, rather than to go over the same ground ourselves.

Apple Tree Borers.

There are several insects known as apple tree borers, but the one most destructive to the trees in the Eastern States is the larva or grub or the two-striped Saperda (*Saperda caddada*). This beetle is about three-quarters of an inch long, of a buff color, with two distinct white stripes extending from the head to the tip of the wing covers. It is very shy, hiding in crevices of the bark, and up among the leaves of the tree during the day, and flying about at night. The beetles appear in spring, the females usually depositing their eggs on the bark of the trees near the ground, where they soon hatch, and the grubs bore into the sap wood of the trees, frequently completely girdling the stems. The grubs are nearly cylindrical, tapering slightly from the head to the end of the body. The head is small, brown and horn-like in appearance. Apple trees that are cultivated with the stems surrounded by grass and weeds, are much more likely to be attacked than those receiving the opposite treatment.

The grubs can be found in the trees at this season and during the summer, their presence being readily detected by the sawdust-like excrement pushed out from the furrows made by them. They should be dug out and killed; a small gouge or a strong sharp-pointed knife being used for this purpose. Lime or ashes are frequently recommended as preventives, being heaped or strewn thickly about the stems; but we are inclined to believe that their efficacy, if they possess any, is mainly due to keeping the grass and weeds from growing up and shading the very place which the beetle selects for depositing her eggs. The Saperda attacks trees of all ages, but appears to prefer those that are young, probably because the bark is thinner and affords more ready access to her young. The only certain method of preserving our apple orchards from destruction is to examine the trees once or twice every season, and dig out every grub found in them. If the base of the stem, for a foot or more from the ground upward, is enclosed in oiled or tarred paper, or any similar material, the female will seldom attack the trees. But even with these precautionary measures the trees should be annually examined.

The next most troublesome insect is the "flat-headed borer." This grub is the larva of a small, flatish beetle about half an inch long, of a greenish-black color above and a bronze appearance underneath. The name of this beetle is *Chrysobothris femorata*, and it appears at various times during the summer, the females depositing their eggs on the stems as well as in the forks of the main branches. It does not, however, confine its ravages to the apple or trees belonging to the same family, like the Saperda named above, but attacks the peach, oak, and several of our forest trees, as well as other kinds of fruit-trees. The grubs bore almost entirely between the bark and wood, the latter dying as they advance. They are very flat and the head appears very large in proportion to the body; hence the common name, "flat-headed apple tree borer." In some parts of the country this insect is very abundant, and large patches of dead, shrunken bark mark their presence in the trees. The only preventative with which we are acquainted is painting the trees at least twice each summer with strong soap. Of course the application, to be effectual, must extend from the ground up to and among the larger branches. Frequent examinations are also necessary, and every grub should be dug out and the wounds made by it covered with some kind of wax to prevent decay of the exposed wood.

The Tent Caterpillar.

This is one of our most destructive as well as common insects. The large web-like nests of these caterpillars, located among the branches of apple-trees, are objects far too common in all parts of the country to require any further description. The caterpillars are the larvæ of a small, rusty or reddish-brown moth known as the *Cistiocampa Americana*,

The caterpillars leave their nests during pleasant weather to feed upon the leaves and return to them at night. The stripping of the leaves checks the growth of the trees, if it does not kill them outright. The nests with their contents are readily gathered and destroyed; consequently there is no excuse for allowing this pest to increase or even do any considerable injury to apple or other trees. During winter, the eggs deposited by the moth can be found in clusters glued to the small twigs of the trees, and if taken off and destroyed there will be proportionately fewer caterpillars the following summer.

Codling Moth.

Wormy apples are common enough, everyone will admit, but how the worms get into the apples is not so clear, except to a few who may have studied their history. The worms so common in apples are the larvæ of a beautiful little moth (*Carpocapsa pomonella*), which was introduced from the Old World many years ago. Soon after the young apples are formed in the spring, the female moth deposits an egg in the blossom, where it hatches, and the grub eats its way into the fruit, causing it after a few weeks to drop off. The grub crawls out of the fruit, and immediately proceeds to climb up the stem of the nearest tree, and, after finding a suitable hiding place, under some piece of rough bark, or in the crotch of the tree, spins itself a thin, silken cocoon, in which it passes the pupa state, finishing its transformation by the last of July, or August, when it comes forth ready for an attack upon the apples which escaped the first brood of the season. The fruit is so far advanced when this second brood attacks it, that comparatively few specimens are caused to drop, but what the farmer calls "wind-falls" among apples are occasionally quite abundant. If the autumn happens to be fine, and the apples are not gathered until quite late, a greater part of the worms will have left them before they are stored; but their cocoons may sometimes be found in abundance in the barrels received in our markets, showing that they were wormy when shipped from the orchard.

Of course, the first, and most important operation to be performed, in order to reduce the number of moths, is to gather every wormy apple as soon as they can be shaken from the tree, feeding them to hogs, or otherwise making away with both the fruit and their contents. If so simple a preventive as this one was vigorously followed, these insects would rapidly decrease in numbers; but farmers, as a rule, are negligent in such matters, until forced to do something to prevent a total failure of their crop. A more certain method of destroying them, is to put hay bands loosely around the stems of the trees, and keep them there during the entire summer. The worms, as they leave the fallen fruit, and crawl back up the trees, find these hay bands a most inviting retreat, and will generally rest underneath, and there spin their cocoons. All that is necessary to do in order to kill them, is to go through the orchard occasionally, and move these bands up and down, sufficiently to crush the worms, or cocoons underneath. The above are the most destructive insects infesting our apple orchards, but there are others requiring attention, and of which we may have something to say at another time.

Beneficial Insects—Hymenoptera.

During the winter season, when the whole insect world is removed from sight, and either killed, or rendered torpid by the cold, it has been our custom to bring before the readers of the CANADA FARMER some observations upon the beneficial properties of insects, as contrasted with the noxious propensities usually so practically brought under our notice in summer. In previous winters we have gone through the principal families of beetles (*Coleoptera*), that are either directly or indirectly of benefit to us; we now propose to treat of another order of insects, the *Hymenoptera*, which includes amongst its numerous families such well-known creatures as bees, wasps, saw-flies, ichneumons, ants, &c. Before enlarging upon any particular family, however, we deem it advisable to give some general account of the order, and its leading characteristics, in order to render our further remarks more readily intelligible.

The name, *Hymenoptera*, like a vast number of other scientific terms, is derived from the Greek, and signifies *membrane-winged*. It is applied to those numerous insects that have four clear membranous wings, crossed, or divided by very few veins, or nervules; the hinder pair are almost always smaller than the front ones.

The members of this order are given the first rank amongst insects by many entomologists, both on account of their structure, and their mode of life. The head is large in proportion to the rest of the body, and is furnished with large, compound eyes, four mippers, or jaws, adapted with the other mouth parts, for both biting and feeding on the nectar of plants. The wings are small, but very powerful, and enable the insect to fly more swiftly, and to continue in flight longer than other insects. In the female, the extremity of the abdomen is furnished either with a venomous sting, or with a piercer, for boring, or cutting the holes in which the eggs are deposited. On this account, the order is divided into two groups, termed respectively Stingers (*Aculeata*), and Piercers (*Terebrantia*).

All the species of *Hymenoptera* go through a complete series of transformations; first, the egg, then the larvæ, or grub, next, the pupa, or cocoon, and finally the winged, or perfect insect. The young of all the Stingers are soft, white, and maggot-like, without legs, and so similar to each other that in this stage the species can seldom be distinguished from each other. Many of the larvæ of the Piercers are of the same character, but others, as for instance, those of the Saw-flies, closely resemble the caterpillars of butterflies, and moths, having a hard, horny head, and jaws, six jointed feet, and often a number of prop-legs besides. Consequently, these latter procure their own food, and are able to move about in search of it; the others, however, are for the most part perfectly helpless, and depend entirely upon the care and attention of their parents, or nurses, quite as much so as the young of the human species.

Another striking peculiarity of the order, is the existence among certain social species of three sexes, as they may be termed; males, females, and neuters. The last constitute the workers in all those communities of bees, hornets, and ants, that unite together in one general habitation, providing a common stock of food, and rearing a large progeny of young. Upon them devolves almost all the labor of the society, the males enjoying a brief, idle life, and the females providing for the necessary increase of the population.

The *Hymenoptera* have their home in the tropical, and temperate regions of the earth, very few, indeed, being found in a climate as cold as that of Labrador. In their perfect state, they love the light and heat of the sun, taking wing only in the day time, and remaining at rest when the sunlight is withdrawn at night, or obscured by heavy clouds. In point of number of species, they are estimated to constitute about one-fourth of the insect population of the world. In their instincts, and mode of life, they far surpass all other orders of insects. To quote Dr. Harris' observations—"If any are curious to learn this, and to witness for themselves the various arts, resources, and contrivances resorted to by these insects, let them go abroad in summer, and watch them during their labors. They will then see the Saw-fly making holes in leaves with her double eye-hole saws, and the Horn-tail boring with her auger into the trunks of trees; they will not fail to observe, and admire the untiring scrutiny of the ichneumon-flies, those little busy-bodies, forever on the alert, and prying into every place, to find the lurking caterpillar, grub, or maggot, wherein to thrust their eggs; the curious swellings produced by the gall-flies, and inhabited by their young; the clay-cells of the mud-wasp, plastered against the walls of our houses, each one containing a single egg, together with a large number of living spiders, caught, and imprisoned therein, solely for the use of the little mason's young which thus have constantly before them an ample supply of fresh provisions; the holes of the stump-wasp, stored with hundreds of horse-flies for the same purpose; the skill of the leaf-cutter bee, in cutting out the semi-circular pieces of leaves for her patch-work nest; the thimble-shaped cells of the ground-

bee, hidden, in clusters, under some loose stone in the fields, made of little fragments of tempered clay, and stored with bee-bread, the work of many weeks for the industrious laborer; the waxen cells made by the honey-bee, without any teaching, upon purely mathematical principles, measured only with her antennæ, and wrought with her jaws and tongue; the water-tight nest of the hornet and wasp, natural paper-makers from the beginning of time, who are not obliged to use rags or ropes in the formation of their durable paper combs, but have applied to this purpose fibres of wood, a material that the art of man has not been able to manufacture into paper; the herculean labors of ants, in throwing up hillocks, or mining their galleries, compared wherewith, if the small size of the laborers be taken into account, the efforts of man, in his proudest monuments, his pyramids, and his catacombs, dwindle into insignificance. These are only a few of the objects deserving of notice among the insects of this order; many others might be mentioned, that would lead us to observe with what consummate skill these little creatures have been fashioned, and how richly they have been endowed with instincts that never fail them in providing for their own welfare, and that of their future progeny."

The above quotation will afford our readers some idea of the interest attaching to the members of this order of insects. In future numbers we shall endeavor to give a more detailed account of the marvellous doings of these creatures, so far as they may be considered of direct, or indirect benefit to mankind.

Entomology a Disgusting Study.

So said a fashionable young lady, a few days since who, while calling upon Clarissima, inquired what that building was, (pointing to my office) and on being informed that it was my office, containing, among other things, an entomological cabinet; of course she shrugged her beautiful shoulders, and emphasised the word "disgusting" at the same time. Poor thing! As she would scarcely condescend to read the *Rural New Yorker*, through fear of seeing something in it about pigs or poultry, I can say what I please without fear of wounding her feelings. Now I have frequently seen this sensitive young lady tipping stewed and pickled oysters down her swan-like throat without the least show of disgust; but even to handle the beautiful beetles and butterflies, or their larvæ and pupæ, is to her a disgusting practice. Anything that God has deigned to make is not beneath the study of man, is the platform upon which all true students of nature stand.

The wonderful differences in opinion and feeling prevailing in society in regard to such subjects are merely the result of education and association. The country boy or miss may not scream at the sight of every harmless spider, like their city cousins; but just ask them to take some shrimps for the first time, and notice the looks of disgust which appear at the very thought of eating these spider-like decapods. Perhaps I should add that ignorance and superstition are the handmaids of timidity, at least, so far as it touches, or comes in contact with the minute forms of animal life. Who has not heard grand-mothers and nurses tell of the wonderful "death-watch" which announced the approaching dissolution of some near relative or friend? No doubt many persons still believe that—

"The solemn death-watch clicks the hour of death."

For centuries, these little harmless insects have been the terror of children, and solemn warnings to superstitious, ignorant people, while all the time these beetles were only making love to each other, and "tick, tick, tick," was equivalent to "come, my love," among the lovers who trembled with fear at the sound. In an old school-book, which was in use when I went to school, there were many good lessons worth remembering, but none containing better advice than two lines of Shakespeare, which told us to—

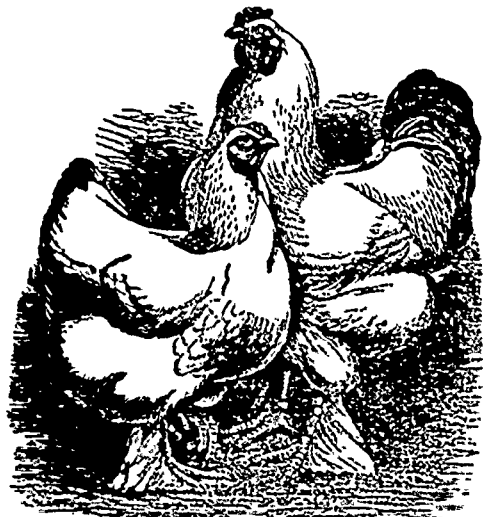
"Find tongues in trees, books in the running brooks;
Sermons in stones, and good in every thing."

—D. R. L., in *Rural New Yorker*.

Poultry Yard.

Light Brahmas. No. 1.

There is, perhaps, no variety of fowls more generally bred in the United States than Light Brahmas; and in Canada too they are becoming great favorites. Two shades of color characterize this variety: American birds are almost exactly the color of new milk when drawn from the cow, not the bluish color



of milk when skimmed off the cream. The contrary of this is sought for by English fanciers, and the pearly or bluish-white most preferred, it being less apt to run into the deep straw color in the cocks, so frequently seen in this country. It may also be observed, as a further mark of distinction, that American birds are much longer in the leg and back, and, therefore, less compact in shape than the English, but to counter-balance this, the former are bred to much larger size. Other points of difference might also be enumerated, such as long head and legs in the American, while the English prefer short head and legs. Recent importations of American birds to some of the most celebrated breeding yards in England, will, no doubt, soon cause a change in form, as no doubt a valuable difference between the two. A fine long-bodied American hen of ten or twelve pounds weight, mated with a broad-backed, short-bodied, and very short-legged English cockerel of a good pearly color, would, no doubt, produce excellent birds, much improved in shape to those now to be found with our best fanciers.

In breeding Light Brahmas, one of the chief difficulties to be overcome is to obtain a sufficient amount of black marking in the hackle, and yet not too much in places where not required. Among nearly all poultry there is a natural tendency to breed lighter and lighter, which should be counteracted in the Light Brahma by choosing cocks with densely striped hackles and saddles, and mating them with dark-necked hens; but the result of this will be pullets with backs and other parts spotted or splashed, and cockerels with black spots on the dull, in the wing, and other undesirable places. But, says Mr. Wright in his "Book of Poultry,"—"To breed pullets, put a cock with narrow but tolerably distinct stripes in his hackle, saddle quite clear, and leg feathering nearly white, with hens so darkly striped in the neck as to be unfit for exhibition, or if they can be got so dark, entirely black, even in the very fringe. From such a cross, so far as regards color, nearly every pullet will be fit to show; while a fair number of good cockerels may also be expected, but not marked enough to be considered really perfect birds. To breed cockerels for showing, on the contrary, a cock should be selected with stripes in his hackle, of a very solid character, and defined stripes in the saddle also, if possible, and mated with hens too light and cloudy in the hackle, and entirely free

from any color on the back. From this mating hardly a cockerel will miss as regards color, but most of the pullets will have backs more or less speckled except in rare cases, not to be counted on, when birds seem to 'breed well,' with no trouble at all. The color of the grey under-fluff should also be carefully examined. It will be found that this varies, in some birds of a very dark grey, and in others of a light pearly grey. In many cases the dark grey under color goes with the darker surface marking, but this rule is not by any means universal; and if two birds be on the surface, apparently both too dark to be mated with success, for fear of producing dark splashes or specks, yet supposing one—say the cock—be of a dark under color, while the other is light, the experiment may often be made with success.

Having in a previous article described the economic merits and laying qualities of Brahmas, it is unnecessary again to recapitulate them here, we will therefore at once proceed to give a brief description of the Light Brahma characteristics as a competitor in the show pen, and in doing so, acknowledge our indebtedness to the authority already quoted.

The Cock.

The head should be white, with a distinct black stripe down the centre of each feather. The shoulder coverts, back, breast, thighs, and under parts are white on the surface, but the fluff or under part of the plumage, down to the skin, is dull grey. The secondaries or outside wing feathers are white on the outer web, and black on the inner web, causing the wing to appear pure white when folded, the primaries or flights black. The saddle feathers may be either white, or (and this is rather to be preferred) white slightly striped with black; tail coverts glossy green black, those next the saddle being silvered on the edges. The tail should be rich glossy green black, with the two top feathers finely edged with silvery white, the white line being sharp and even all round, and about one-sixteenth of an inch in width. This point, when perfect, is a very great beauty, and generally a sign of good and careful breeding, but it is now so rare, that it cannot be insisted on. The shape of the tail is already described; in default of that conformation, what would be sickles in another breed should diverge laterally like the tail of the black cock; but in either case it should be nearly upright, and the tail of the Cochon is not to be sought after. Perfectly white shank-feathering is, it possible, to be avoided.

The Hen

Should have a pure white head, the brilliant red of comb, deaf ears, and wattles contrasting very distinctly. The neck-hackle should be the same clear white, distinctly, darkly, and broadly striped down each feather, the black stripe ending clear and sharp at the base, so as to form a kind of dark necklace. All the body color should be a clear white surface, with an under ground color of grey, the primary quills being black. The tail is also black, except the two top feathers, which ought, if possible, to be edged with white on the top edges, but this is not to be too rigidly insisted on. The shanks, like the cock's, should be a bright yellow color, and the feathers white, very slightly mixed with grey or black. Except the neck, tail, and the little black or grey on the leg, the general appearance of both sexes should be a clear white all over, any tendency to yellow being a great defect. The latter color exists naturally in some strains, and is distinct from the sun-burn which hot weather will produce even in good white birds.

Some breeders cross the light Brahma with the white Cochon, a cross much to be deprecated, the evils of which appear more and more in the after generations, say two or three, than at first. Reversion to the Cochon breed may be seen in the single combs, dark or sandy patches of color, light hackle, and deficient breast, but the best test of the cross is, perhaps, in the ground color, which is white instead

of grey; this latter, with single combs, is most conclusive evidence of a Cochon cross. Light Brahmas, to be seen to perfection, require a good grass run, on which they will keep clean, and always look neat and tidy. They are great foragers, and will follow the plough for several fields from their roosting abode, and in such case require little food other than they pick up for themselves.

Poultry Notes—No. 1.

Winter Treatment.

To insure success in poultry-breeding, we must be guided by the laws which govern animal life and health, we must study and obey them, their knowledge is as essential to us as the knowledge of the law of gravitation is to the mechanical engineer; and in former years it was owing to this want of knowledge that many failures in poultry-breeding arose; roup, gapes, and other diseases decimated our poultry yards, and large breeding establishments generally proved failures. They are, however, neither numerous nor difficult to be understood, but, on the contrary they are few and simple, and may be summed up in few words—pure air and proper shelter from wind and weather. Pure air of course implies proper cleanliness and proper ventilation, and shelter, a comfortable house and roosting place. These are the essentials to the health and well being of poultry of all kinds.

Every breeder who wishes success to attend his efforts must bear in mind that whether he breeds for exhibition purposes, or for domestic use, his first consideration must be a comfortable abode for his fowls, one that will afford them not only warm quarters during the severe winter weather, but also a retreat from the hot summer's sun. It ought to be well ventilated, well sheltered, and if possible facing towards the south. The admission of pure air and sunshine is as necessary to the retention of good health in fowls as in other animals; neither must occupation be overlooked. To rear and breed successfully, we must be guided by nature. The natural occupation of a fowl is to scratch in the earth for its food; in constructing poultry houses this point should be kept steadily in view, and a small glass covered run be erected, to which, they will have free access from the roosting house in stormy and wet weather. The floor of this covered run should be of earth well covered with ashes of wood or coal, or, in their absence, gravel. During inclement weather the grain on which they are fed may be thrown under this covered run, and thus provided with occupation, the time spent in picking and scratching will prove beneficial to their health. Occasionally, the ashes or gravel should be well raked over, and when necessary, removed and replaced with fresh material. The building need not be an expensive one. Comfort is more to be considered than appearance, although when both are combined it adds much to the effect. Nor need it be over large, our Canadian winters are severe, and in a too roomy house, the combs and feet of fowls are more liable to be frozen than in a moderately sized one. The droppings should be all removed from the roosting place, if not daily, at least twice a week and preserved for the garden, no manure so good as hen manure; the yards attached should be perfectly dry under foot, and a grass run attached to each house, so that in fine weather its inmates may have ready access to it. The open yard should be kept free of snow, all who have kept poultry in small yards know how difficult it is to do so. We have had our experience in this; yet under no circumstances should snow be allowed to accumulate in fowl yards, nor the fowls permitted to eat it. Strange to say they will do so to appease their appetites for water in preference to drinking out of the fountain, notwithstanding it may be ready at hand. Snow when picked up by fowls has the effect of reducing the system, for this reason then, the yards should be kept clear of it, be-

sides, if allowed to accumulate, the heat of the sun on fine days will cause it to melt, and the yard will be sloppy and uncomfortable. In the corner of the house, or under a shed in the yard, a dust box should be placed with dry wood ashes for the hens to dust themselves in; this is a great preventive against lice or other insect vermin. If the houses have not been well lime-washed in the fall, or if any appearance of insect vermin present itself, the house should be thoroughly syringed with a solution of carbolic acid prepared as follows. Three ounces of carbolic acid in crystals dissolved in twelve quarts of water, this will be instant death to all insect vermin, and if desired lime may be added to make it of the proper consistency, and the house washed with it.

It is a common practice among farmers at this season, to allow fowls to roost in the barn, or in the stable with cattle, arguing in favor of this comes that warmth to the fowls is communicated by the other animals, and therefore the birds are benefited. So far the argument appears good, warmth will undoubtedly be communicated, but so will moisture and damp from the breath and droppings of the cattle, which will settle on the combs and other extraneous parts of the fowls and render them much more susceptible of injury by frost than if free from it, indeed the least exposure to cold when in this state renders them liable to frost bite, and through this means many valuable birds are permanently disfigured. No matter how extensive the outbuildings may be, it is not good to allow fowls a free range at this season of the year and roosting where they please; they should be kept within prescribed limits and in houses provided especially for their accommodation. Thus confined it will be necessary to provide them with a substitute for the insect food they are deprived of, and which, owing to the frozen state of the ground, they could not, even if they were at liberty, pick up, occasionally, then, a piece of coarse meat, bullocks liver, or even chandler's graves may be left in their covered run and will be greedily devoured.

Eggs in January are of much greater value than later in the season, special attention ought, therefore, be given to their production. Early chickens, if properly cared for will now begin to lay freely; good and suitable diet with a warm abode will add materially to their egg-producing powers. An early breakfast of warm soft food should not be omitted, it has a wonderful effect in restoring the warmth to their bodies, lost during the long cold nights of this month; in the middle of the day, a little grain of some kind should be given, and again in the evening, before going to roost, a good substantial meal of wheat screenings, buckwheat, or other grain should be given. Green food should also be supplied, a cabbage head hung up by its roots in a sheltered corner of their yard will afford amusement and be freely partaken of; sliced carrots, turnips, mangolds, &c., will also be freely devoured. Special attention should also be paid to their drinking water; their fountains or drinking vessels ought to be filled morning and evening with fresh water. Various devices for drinking vessels have been adopted with more or less success, but, as the small iron pot is perhaps more generally used than any other, it may be well to state that if well greased on the inside before filling with drinking water, ice will not cling to the bottom or sides, indeed this holds good to all vessels, and therefore, at all times it can be readily emptied out and fresh water supplied. Not unfrequently, diarrhoea may be noticed in fowls at this season, and may arise from the entire absence of green food from their dietary, or from too free a supply given at long intervals between. From whatever cause means should be taken to remedy it, and the following will be found a good prescription,—five grains of chalk, five grains of rhubarb, and three grains cayenne pepper made into a pill and administered morning and evening till a cure is effected. A very good preventive of diarrhoea

is the use of Douglas' mixture in the drinking water; it is made as follows:—To half a pound of sulphate of iron add one ounce of sulphuric acid dissolved in two gallons of water, and kept in a large bottle or jar; to the water in the drinking vessel add in the proportion of one teaspoonful to each pint of water. In the *American Agriculturist*, and subsequently in *The People's Practical Poultry Book*, appeared a very ingenious contrivance for keeping water from freezing in the severe winter weather of our climate, with the following description. "A barrel is sawed into two tubs, and an earthen jug placed in one of the tubs, the bottom of the jug, and that of the tub being in contact, or nearly so, and the mouth of the jug close to the rim of the tub. The jug may be fixed in position by a few sticks nailed across the tub inside. The tub is then stuffed full of horse litter and manure, and strips nailed across to keep it in. When this is done, we fill the jug with water, put in a cork, and invert tub and all. The cork is then withdrawn at the same time that a small pan is slipped under. The pan remains full during the day, and, if set in the sun, will not freeze so much as a film of ice upon the surface, even out of doors, except on the severest days. At night the pan should be withdrawn and the water allowed to flow out."

Farm Poultry.

Mr. Stephens, in his *Book of the Farm* says. Of all the animals reared on a farm there are none so much neglected by the farmer, both in regard to the selection of their kind, and their qualifications to fatten. All the sorts of domesticated fowls found in the farm yard. Indeed, the very supposition that he would devote any of his time to the consideration of poultry, is regarded a positive affront on his manhood. Women, in his estimation, may be fit enough for such a charge, and doubtless they would do it well, provided they were not begrudged every particle of food bestowed upon those useful creatures. The consequence is what might be expected in the circumstances, that go to most farmsteads and the surprise will be to meet a single fowl of any description in good condition, that is to say, in such a condition that it may be killed at the instant in a fit state for the table, which it might be if it had been treated as a fattening animal from its birth. The usual objection raised against feeding fowls is, that it does not pay, and, no doubt the usual price received for lean, stony-fleshed, sinewy-legged fowls is far from remunerative; but whose fault is it but the rearer of them, that fowls are sent to market in such a state? And why should purchasers give a high price for any animal, be it fowls or beast, that is under condition? There would be some excuse for the existence of lean fowls at a farmstead were there any difficulty of fattening poultry of every kind; but the idea of expense is a perfect bugbear, and this one, like all others that seize us through our fears, would vanish, were a plan adopted for rearing fowls more consonant to common sense than the one usually pursued. To judge from common practice, the prevalent sentiment seems to be, that fowls cannot be ill-off when they get leave to shift for themselves. Such a principal is a grievous error in the rearing of any kind of live stock. Better a man keep no stock at all than allow such a sentiment to influence his conduct to them. Fowls may be considered worthless stock, and so they generally are, but are you sure that it is not your mode of managing them that renders them so. But, apart from every consideration of profit derived from the sales in market towns, there is the superior care of the farmer having it at all times in his power to eat a well-fed fowl at his own table; and there is no good reason why he should not be able to enjoy such a luxury at any time he chooses. There would be economy in it too, in the long run, inasmuch as good poultry at command will keep him out of a butcher's market, into which he cannot go without cash in hand, and cash he cannot command except by realizing the money value of some commodity or other from the farm. Few farmers kill their own mutton, that is to say, keep fine, fat sheep for their own use; but like beef, it must be purchased; so that situated as the farmer usually is, the produce of the poultry-yard and pig-stye constitute the principal items of his board. And why should he not have these in the highest perfection?

TO KEEP EGGS FROM BECOMING CHILLED.—In cold weather nests should be lined with soft paper. Then look sharp after the eggs when laid, and as soon as the animal heat is partially gone, wrap them in dry paper, and pack in a dry box in a dry cellar, then if you wish to ship to a distance, wrap in many thicknesses of paper (before they leave the cellar), and pack in paper shavings in a tight box, and you may ship successfully when the thermometer marks zero.

Turkey.

A Christmas Ode.

Who is the turkey handsomest?
With sunshine on his brazen breast,
When every feather's like a scale
On a glittering suit of knightly mail;
When his tail is spread, a splendid fan,
As he struts before his faithful clan,
With blue, bald head and threatening eye,
And wattles red as a stormy sky?
With lofty step and war-cry loud,
He marshals forth the quivering crowd,
Or leads their dance across the plain,
Or heads their march through waving grain,
Intent on plunder, red with pride,
Like warrior not to be defied,
In all the pomp of battle dress—
Then is the turkey handsomest!

When is the turkey handsomest?
When he is killed, and plucked, and dressed,
His spurs hacked off and thrown aside
With all the trappings of his race,
He lies, a goodly shape of snow,
On a stall or dresser making show
Of swelling breast and rampant legs,
Or, dangling from the larder's pegs,
Feeds to the cook-maid a practiced eye
How fast the days are flitting by,
How soon appears the day of days,
The hour of turkey's reign and praise;
There, hanging in his smooth white vest,
Is not the turkey handsomest?

When is the turkey handsomest?
Ah! when again he shows his breast,
Brown with the sunshine of the fire,
Crisp as the lady's silk attire,
With unctuous juices dripping down
In pools of gravy, rich and brown;
Odorous as any spicy air
That blows across an orchard fair,
His bosom swelled with savory meat,
Of sausages and bread-crumbs sweet,
His pinions neatly skewered and tied,
With giblets tucked in either side;
His legs resigned to any fate,
Stomach no more, but neckly straight,
Beside him cranberry, ruby clear,
With groves of brittle celery near;
As stately as a king he lies,
The centre of admiring eyes,
Now is the turkey handsomest,
Arrayed before the hungry guest,
Of all the viands first and best!
His life well lived, his woe at rest,
And the platter he lies on gaily dressed,
Now is the turkey handsomest!

—Our Young Fella.

The Early Ducklings that realize such high prices in the London market, are said to be principally the Aylesbury variety, distinguished by their great size, white plumage and flesh-colored bill. Their high quality is said to be produced by feeding the old birds largely with sound oats placed in a vessel of water. If not allowed much room to swim, old ducks will lay freely in water; then the eggs should be hatched under hens, and the ducklings liberally fed with slaked oatmeal and fine middlings, and afterwards with oats in water. Under this treatment they may be made ready for the table in less than two months. *Country Gentleman*.

DUCKS AS EGG-PRODUCERS.—In answer to a correspondent, the *Collage Gardener* says: The number of eggs laid by a duck depends very much on the breed to which she belongs. In all poultry, the non-sitters lay more than those that are concerned in the rising generation. Thus the Aylesbury will lay a greater number of eggs than any other duck. The black duck, called the Labrador, the East Indian or Buenos Ayrean is a good layer. The Rouen is an average layer, and the wild duck lays few compared to these. An old duck is, as a rule, a better layer than a young one, but it is impossible to give the average of any of them. Aylesbury ducks begin to lay in November and December; Rouens three months later. Both the time when they begin laying, and the number of eggs they lay, are influenced by their keeping and by judicious management.

SULPHUR FOR GAGES IN POULTRY.—Mr. H. W. Lassar writes to the *Tribune* that when he was a boy, and big back ovens were in use in the south, every morning when the biscuit for breakfast were taken out and the oven yet hot, Sally made up a pone of corn meal (unsifted) bread, with a heaping tablespoonful of pulverized sulphur to the quart of meal, mixed with water and nothing else, and this was fed to the chickens and turkeys morning and evening, and I never knew one dozen chickens lost with gages, as it is known that sulphur is death to parasitical worms. The young turkeys had a pill of ground black pepper given each morning when they appeared drooping, until again lively. These pills are easily made by adding enough flour to cause adhesion.

CALLING THE COWS.

BY SHIRLEY CLAIR.

Co Bos! Co! Co!
Come Dapple, come Daisy and Dell,--
See, I am coming to open the gate,
Supper is ready, I cannot wait!

Miscellaneous.

Sericulture in Australia.

An exceedingly valuable contribution to the literature of sericulture has been recently made by M. A. Roland, of Aube. It will be remembered that this gentleman is distinguished for his remarkable success in producing healthy silkworm grain. At his farm, Mrs. Bladen Neill was instructed in the system of sericulture, which she has been endeavoring with so much energy to introduce in the Australian colonies.

M. Roland's experience shows that by this means that great, and until recently, almost unhoped for desideratum to sericulturists—a hardy race of silkworms—can be secured. Just as rearing in heated rooms enfeebles the grub, and renders it delicate, so a return to nature's order brings back its lost robustness.

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