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NEW SERIES

OF

THE CANADA FARMER.

THE PUBLISHERS OF THE CANADA FARMER respectfully announce, that in consequence of the new Postal Law coming into operation on 1st January, 1869, a change in the mode of publishing THE CANADA FARMER has been rendered necessary. Heretofore, all Journals devoted to the advancement of Agriculture in Canada have passed through the Post Office free of postage; but the law enacted at Ottawa last session abolishes this privilege, and imposes a tax which, in the case of THE CANADA FARMER, will amount to Twelve Cents *per annum*, or one-eighth of the annual subscription. On the whole circulation of THE CANADA FARMER, this postage tax amounts to $1,680 annually; and it has to be paid—not by each subscriber on delivery of his paper—but by the publishers in advance, when the papers are mailed.

This measure has entirely changed the conditions under which THE CANADA FARMER has been published since its commencement, five years ago. **No expense has been spared in maintaining the character of the paper as a first-class Journal. The best Agricultural writers in the Province have regularly contributed to its columns; the Original Illustrations have been profuse, and in the best style of art; and**

The Paper and Typographical execution have been Unsurpassed

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The publishers of THE CANADA FARMER have resolved to meet the difficulty thus presented to them by putting forth more strenuous exertions than ever before to increase the interest and usefulness of heir Journal, and greatly to enlarge its circulation. They have resolved to commence, in January next, a

NEW SERIES OF THE CANADA FARMER,

With a number of new and attractive features; and nothing will be left undone to make the coming series still more worthy of support than the past.

The new series of THE CANADA FARMER will be issued *monthly;* the size of the page will be nearly as heretofore; but each number will contain

FORTY PAGES OF READING MATTER,

Instead of sixteen as formerly. And notwithstanding the new postal tax, the subscription price of the new series will remain as before,

ONE DOLLAR PER ANNUM (Free of Postage,)

But without any deductions from that rate. The aid of Agriculturists throughout the Dominion is respectfully solicited in obtaining subscriptions for 1869.

Letters will be addressed as heretofore to

THE GLOBE PRINTING CO.,

TORONTO.

THE CANADA FARMER

VOL. V. NO. 1. | TORONTO, CANADA, JANUARY 1, 1868. | POSTAGE FREE.

The Month.

JANUARY, in this climate, is a severely cold month. About New Year's Day we are accustomed to look for pretty sharp weather, which continues without much abatement all through the month, except when we have the "January thaw," an old-fashioned institution, which, like "Indian Summer" and many others of the same class, has of late years been going rather out of vogue. Experienced observers are of opinion that our climate has been changing its character in various respects, and that it differs considerably from what it was fifty, or even twenty-five years ago. This is to be expected as the result of the more complete clearance of the land and its exposure to the full action of the elements. We are certainly more subject to bleak wintry winds than we used to be, owing doubtless to the free scope and clean sweep a cleared country gives to the biting blast. This is one of many evils growing out of the wholesale destruction of forest trees. There is no shelter against wintry winds at all comparable to that afforded by trees, especially evergreens. To appreciate the value of a dense evergreen wall, you have only to pass from the windward to the lee side of one "when the wintry winds do blow." Our farms ought to be belted, our fields environed, and our homesteads embowered and walled in with trees. Every month in the year proclaims the wisdom and duty of tree planting, and none more loudly than January.

Whatever modifications our climate may undergo in other respects, the phrase, "a Canadian winter" will, no doubt, always denote a period of intense cold. Yet we question if the cold be so excessive, long-continued and trying as persons at a distance are apt to think. Not much fuss is made about a New York or Boston winter, but when we have what is called a "cold snap," the markings of the thermometer at the cities just named are about the same as at the average of localities in Western Canada. On that memorable cold day which occurred during the winter of 1860-61, the thermometer fell to 20° below zero in Boston, and from 20° to 30° in the adjacent towns of Massachusetts. We have no record at hand of the markings in and about New York on that day, but we are very clear in our recollection that the cold was no more intense in Toronto and other places on the day in question, than in Boston and its vicinity. It is a peculiarity of our climate that extreme cold only lasts a very short time, seldom beyond three days at once, while our usual winter weather is far from being unpleasantly severe. During most of it, exercise and labour in the open air are not only practicable, but bracing, blood-stirring and positively enjoyable.

Not much out-door farm-work can be done this month. Wood may be chopped, hauled, and prepared for use—a very important piece of work, and one that, attended to in winter, will save much time during the busy season. What more provoking, when the rush of spring or summer business is on, than to hear a call from the kitchen for firewood. How annoying to the female members of a family, to find themselves out of wood just when some unusual press of cooking is on hand. Many sweet tempers have been soured, and many happy homes made uncomfortable, by little vexations of this kind, which by a little forethought and care might have been prevented. It is not work that kills people, but worry; and life may be actually lengthened, as well as rendered more enjoyable while it lasts, by lessening the causes of worry as much as possible.

Manure, swamp-muck, plaster and other fertilizers, may be hauled at this season of the year. If there is well-rotted dung fit for top-dressing, it may be teamed to the meadows, ready for spreading when spring comes. Even the fresher manure may be got out on the land, for modern researches in agricultural chemistry have demonstrated that the wash of it into the soil takes almost all the valuable material, while the waste is only trifling.

But the care of stock is the chief business of the month, and it will pay to do this work thoroughly. Tight stabling and comfortable sheds, cleanliness, ventilation, regular feeding and watering, are always profitable. It is the reverse of economy to have poor and limited building accommodation, or to stint animals in their supply of food. Apart from all humane considerations, it is the farmer's best policy to look after the stock with unremitting diligence. There is much cruelty to animals and great loss to their owners occasioned through neglect, thoughtlessness, and inattention in this matter.

Now is the time for making and repairing hay-racks, wood-racks, gates, and a variety of "fixings" needed on the farm. Every farmer should have a few tools, and some sort of a shop that can be made warm and comfortable in the winter. Most people have some constructiveness about them. The exercise of this faculty improves it, and it is astonishing how handy and clever one may become after a little persevering practice. A multitude of conveniences both out-door and in-door may be provided by the diligent application of a little mechanical ability. Those who keep bees—and every farm should have its apiary—will do well to provide hives and surplus honey boxes for the swarming and gathering season during the winter. We advise our readers to get a hive and right from J. H. Thomas, Brooklin, Ont., and then make, according to pattern and directions, the supply they need.

If any buildings are projected for erection next spring or summer, it will reduce expense and expedite matters to haul as much of the material as possible during the winter. Lumber can often be bought at a considerable reduction of price at the mill, and a few miles of hauling is nothing when there is good sleighing.

Winter is the farmer's golden opportunity for mental improvement, and should be eagerly seized and diligently used. It is the season for laying plans and determining the order of procedure during the busy periods. Let the state of the farm be thoroughly considered,—let each field be scrutinized as to its condition and capabilities,—so that a right course of rotation may be mapped out. Those who have not adopted a system of farm accounts will act wisely to begin at once. Let a Dr. and Cr. account be kept with the farm as a whole, with every separate field, with the stock, dairy, poultry-yard, and each branch of industry engaged in, and let the lessons of practical wisdom gathered from year to year be stored up for future guidance.

Winter is the time for lectures, farmers' clubs, and the like. At very small cost a course of lectures might be got up in every rural neighbourhood. Or an occasional lecture, interspersed with discussions, musical entertainments, &c., would do much to excite thought, encourage reading, promote sociality, and enliven the dreary winter time. In almost every neighbourhood there is local talent that might be turned to useful account in this way.

Finally, we beg to remind our readers that January is the month for subscribing to periodicals and renewing subscriptions to them. Every farmer's family should take at least three periodicals: *first*, a newspaper, properly so called, to obtain acquaintance with what is going on in the world: *secondly*, an agricultural journal, to keep up with the advance of knowledge and march of improvement in rural affairs: and last, but far from least, a religious periodical, to give information concerning the great ecclesiastical movements of the age, and awaken attention to our most important duties. Let more be taken by all means, if they can be afforded; but those just enumerated should be ranked among the necessaries of life, and secured even before tea and sugar. Pay promptly in advance for the periodicals you take, and you will read them with greater zest, as well as help not a little in making them first-class as to management and contents.

The Field.

The Structure and Office of Leaves.

In the brief notices of vegetable organization and life that have appeared from time to time in this journal, the structure and uses of the seed, the root, and the stem have been successively described. Following the order naturally suggested by the external arrangement of parts, the leaf comes now under consideration, and in no portion of a plant can the student of nature find more to instruct and interest him. The first thing that strikes the attention is the outward form of the leaf; and here we find a singular beauty and an endless variety of outline. In the majority the general shape is that of thin, flattened expansions, more or less symmetrically formed; yet occcasionally we meet an extreme departure from this type, in the thickened and rounded formations whose true character it is difficult at first to recognize Moreover, the outline, though in general symmetrical, is never mathematically true to any given figure; and while in each species there is so marked a uniformity of shape as to afford the readiest means of identifying the plant, yet perhaps no two leaves of even the same plant will exactly correspond. The endless variety, combined with perfect unity of plan and structure, together with the marvellous beauty to be observed in these curious structures, render them attractive objects of study to the artist as well as the naturalist. It would be impossible to give even the briefest classification of the forms of leaves in the limits of these short notices. A general description and a few examples only can be attempted.

Leaves consist usually of the stalk and blade; but not unfrequently the former is absent, and the leaf is then said to be *sessile*. When the blade consists of but one expansion, however much notched and divided, it is said to be simple, but when it is composed of separate leaflets articulated to the stalk, it is called a compound leaf—such as those of the pea, the rose, etc. They are usually thin and membranous, but sometimes, especially in arid situations, they are thick and succulent, as in the stone-crop, house leek, aloe, and other examples. Generally they are so disposed as to present one surface upwards towards the light, and another downwards in comparative shade; but in some species, by a twist in the stalk the edges instead of the surfaces are turned upwards and downwards, each side of the leaf being then equally exposed to the light. While by far the greater number of leaves are developed altogether in the air, some float on the surface of the water, and some are entirely sumberged. Each of these conditions is accompanied with certain modifications of structure exactly suited to the individual case

The arrangement of leaves on the stem is remarkably uniform and regular, the type being that of a coil; that is to say, that a line drawn from the lowest leaf, when they are placed singly, to that next to it, and on to all the rest in succession, would describe a very regular coil round the stem. When they grow in pairs, these are alternate in their direction, and the stem is usually more or less square instead of round. The development of leaves, and the beautiful manner in which they are folded in the bud, embracing an immense variety throughout the vegetable kingdom, with an exact uniformity in each species, present a very interesting study, but can only be alluded to here

Passing from the external form and aspects of the leaf, its anatomy and structure come next under consideration. The frame-work is composed of woody fibres usually called veins. Covering these, and filling up the spaces between them, is a spongy sort of texture composed of minute cells, or rather bladders, of various forms, and more or less compactly arranged according to circumstances and specific peculiarities. The woody fibres which constitute the veins are disposed in two layers; one, forming usually the upper layer, springs from the central woody portion of the stem, diverges in the blade, and is very minutely subdivided, while the lower layer, returning along exactly the same course, converges towards the base of the leaf, and enters the inner layer of the bark. Thus it will be seen the veins of the leaf connect it with the wood and the bark of the stem from which it springs They form, in fact, a system of tubes, which serve to convey the sap that has been drawn from the roots through the wood, into the expanded blade of the leaf, where it is elaborated

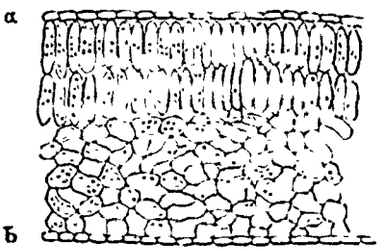


Fig 3.

under the influence of light and air, and then returned to the space which forms the outer circle of the wood and inner circle of the bark—that portion of the stem where the new wood is deposited, along with certain other deposits, which permeate the stem, and are stored in the heart of the wood. This double layer of woody veins can occasionally be observed in those skeletons of leaves which are met with often on the ground in the spring of the year, the spongy, cellular flesh of the leaf, so to speak, having rotted away, leaving the more durable framework detached and exposed. If the cellular substance of the leaf be examined under the microscope, it will be observed that there is a thin pellicle or skin covering the whole. This is called the cuticle, and the cells or bladders

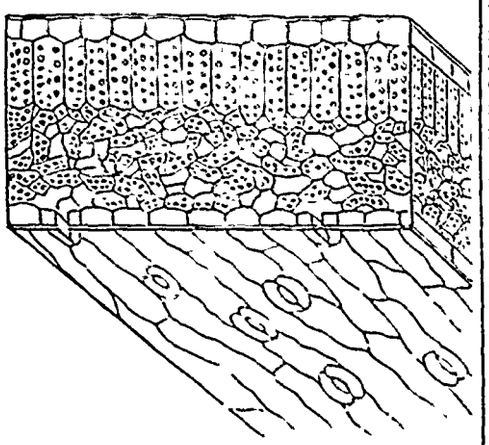


Fig 2

which compose it are placed very close together, so as to moderate the effect of the sun's rays and prevent undue evaporation. They are perfectly transparent, and contain no sap or fluid of any kind. In plants exposed to intense solar heat, and growing in arid situations, the protecting power of the cuticle is still further increased by a thickening of the membranous walls of these minute bladders, and by the presence of an additional layer or two of closely compacted cells. The compact cellular structure of the stem, and the difference here alluded to, is shown in the

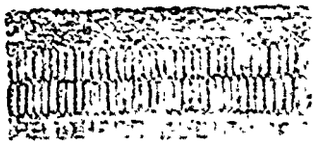


Fig 1

accompanying illustrations figure 1 representing the section of a portion of the leaf of the garden balsam, and figure 3 the upper part only of a similar section of an oleander leaf In figure 1 the boundary consists of a single row of cells (a, b); this is the more common arrangement of the cuticle; but in figure 3 it will be seen that this covering is composed of three layers of bladders, the walls of which are, moreover, much thicker than in the first example. The fleshy portion of the leaf, enclosed by the skin, is likewise composed of a spongy mass of minute cells, more loosely arranged, and the spaces between them being permeable to air and moisture. These cells are not, however, empty, like those of the cuticle but contain the colored matter, usually green, which gives the leaf its characteristic hue. Moreover, the disposition of the cells is very remarkable, there being a striking difference in the arrangement of those forming the upper portion and that of the cells on the under side. The shape of the cells forming the upper layer is much elongated, and they are disposed close together and perpendicularly, with the small ends pointing up and down, whereas the cells of the lower side are loosely arranged, with considerable spaces between them, and they are much more rounded and irregular in figure. This also is shown in the illustrations, both in figure 1, already alluded to, and in figure 2, representing a magnified section through the thickness of a minute portion of the leaf of the white lily. The object of this arrangement will be apparent when we consider the position and functions of leaves. Usually leaves are so placed that one surface is exposed to the direct rays of the sun, the other being comparatively screened from the sunshine. Within the leaf, processes somewhat analagous to breathing and digestion are carried on. The fluid nourishment of the plant, drawn from the soil by the roots, passes up through the stem and permeates the leaves, where under the combined influences of light and air the most important vital processes of vegetation are carried on. It is obvious, therefore, that the elongated shape, and the close, perpendicular position of the upper cells, presenting only their ends towards the direct sunlight, very much moderate the rapidity and force of evaporation, and afford a great protection to the contents of the loose spongy texture of the lower side, where the act of breathing, consisting in the absorption of air and exhalation of vapor mainly takes place.

In order to enable them to perform the office of respiration, or rather the double office of exhalation and respiration, the under surface of leaves are furnished with minute openings or breathing pores called *stomates*, (mouths). These are represented in figure 2 on the under portion of the section of leaf These openings are formed generally by two some what kidney-shaped bladders, placed side by side and coherent by their extremities. When these minute bladders are moist they become crescentic in shape, curving away from each other, and leaving an opening between them, which allows a free passage to the air from without and watery vapor from within; but when they are dryer they collapse, the inner edges approach and gradually contract and even close up entirely the aperture between them. Thus, when the leaf is full of moisture, exhalation goes on freely by these pores on the under surfaces; but when the supply of fluid is diminished, and it becomes necessary to arrest exhalation, the openings graddally close. These breathing pores act as valves, regulating in a most beautiful manner the absorption and exhalation of air and vapor. They occur principally on the under side; but in those species already alluded to, where the edges and not the surfaces of the leaves are turned respectively to the earth and sky, they occur equally on both sides; and in floating leaves, such as those of the water-lily, they are found only on the upper side; while in submerged leaves both stomates and cuticle are entirely absent.

The number of these minute orifices is very considerable, but varies in different species from 800 to 170,000 on a square inch of surface. In the apple they are said to be about 24,000 to the square inch, so that each leaf of that tree would present about 100,000 of these breathing pores. The foregoing is a very cursory and imperfect sketch of the structure and function of leaves. To enter more minutely into details would extend this article to an unreasonable length. For further information, the student must

refer to works on botany and vegetable physiology. In these also he will find descriptions and explanations more or less satisfactory of other interesting phenomena, such as the sleep of plants during the night, accompanied by the drooping and folding of leaves, as well as notices of their decay, and the gorgeous coloring that often characterises the change, terminating in the death and fall of the leaf.

How to Exterminate the Thistle.

To the Editor of THE CANADA FARMER:

SIR,—The first number, and the leading article of last year's issue, opened with a broadside on the invading Canada thistle; and I have carefully watched every paper since, to see how the war would be conducted, and with what success. I confess I have been entirely disappointed with the year's campaign. I have heard of timid farmers quitting their homesteads round Fort Erie on account of the invading Fenians, and I have heard of farmers quitting their homes (or rather driven from them) by the bold and still advancing enemy, the Canada Thistle.

Peter Shisler recently favoured us with his methods, also his experience, in the 1st of November number, which, taken in connection with the first of this year's issue, offers a good opportunity for fair criticism. In the first number, the aid of the steam-plough was enlisted to do battle, but in this last case Peter Shisler drops this potent power, and is content with the cavalry plough, which for all plans of a wholesale character is the only one thing needed. The expense of ploughing for a summer fallow, say four times, $4 per acre, cultivating, harrowing and rolling, say another $4—and all to get rid of the thistle. I will now propose a system entirely opposed to ploughing or fallowing; for by observation, I feel certain, fallowing is, and has been for many years, the most certain and infallible way to propagate the thistle by wholesale; for that state or condition of soil which, under the effects of fallowing, makes a good seed bed for wheat, makes also the same for the thistle, and at exactly the same time; for at this time we frequently see (like a little summer snow storm) the thistle with its downy wings floating in the breeze, and settling on the fallow. Some of this seed is ploughed in, some harrowed, and some remains upon the top till stripped of its wings, in any case it seeks no better home. Old meadows in England have had their patches of thistles for (perhaps) more than a century, and they never seem to increase, but how widely different is the case in arable lands the fields of the Canadian farmer can sadly demonstrate.

In looking over *Loudon's Encyclopedia*, I find some very interesting and instructive information respecting the numerous species of the thistle tribe, and the Canada thistle, as it is now called, has its full share of remark. One experiment was made by planting a slip in a garden in the spring, and in the fall it was carefully dug up, the roots collected, washed and weighed. They amounted to five and a half lbs., but with all the care to collect all the roots, sixty plants sprang from pieces unseen. Then again, this plant has been known to send its roots down nineteen feet, and some say much further. It delights to grow on ploughed fields; and, according to Loudon, the best way to subdue them is to lay or seed the land down with grass, and then to cut them off continually for six or seven years, and this plan is recommended as far better than ploughing, &c. Now, before the steam ploughs can be brought to bear upon this question generally, should we not look ahead for thirty years? Then, taking Loudon's seven years, and the steam plough's thirty, I would ask, "Is this seven-and-thirty year system satisfactory?" The thistle is in every sense a perennial. It does not often flower the first year, unless the seed vegetates early in the fall. Now, if we watch its growth, maturity, and decay, we shall find that here, as with other perennials, a provision of organic matter has been stored in the roots for the reproduction of new formed shoots and leaves. If we carefully remove the soil from the collar of the plant, we shall find a healthy spike, some one or two inches long, to remain dormant till spring, and if we examine the asparagus in like manner, we shall find the same provision at the base of each matured stalk, but in greater numbers. These embryo buds are exactly analogous to buds on the branches of trees. Now, if we can ascertain to a certainty from whence these buds (either above or below the ground) derive their formation, we can then (by removing that cause) destroy any plant, or tree.

I have heard men that have been assessed at $12,000 a year, and whose matured age is indicated by grey locks, speak gravely on this important question thus! "There is a time (an exact time) in the age of a certain moon, but they are not quite sure which day or hour, or whether it happens by day or night, when, if they are cut down, they will surely be killed." Other men of like age will stand with folded arms and look contemptuously. If you ask why they grow so many thistles, and tell them they can be destroyed as well as cultivated, they will reply in this wise: "Don't you think to tell me anything about thistles; I tell you they can't be killed. I have now cultivated this land turned forty years, and they are just as bad now as ever, and I think a little worse, and I have tried all sorts of ways and find it no use, and I have left off for years bothering myself about them." This class of men can only be convinced by actual demonstration. Let me, then, endeavor to convince one and all that the process of exterminating thistles in ploughed fields is much easier and more certain than has hitherto been generally admitted, and instead of losing $8 per acre, besides a year's crop, the farmer shall be convinced that he is a clear gainer by adopting such a process. Peter Shisler speaks of *three* ways that have proved successful; first, cutting off below the surface so as to leave a hollow, which will cause them to rot; the second is to salt them; the third is frequent ploughings. The latter plan has been shown to be the principal if not the only way to rapid extension; while it occasionally destroys the old stock, it ensures a more numerous young one. The second is to pickle them, which as soon as proposed is abandoned by reason of its inapplicability. The first is the correct one to meet all cases, including that of thistles growing round stumps, line fences, &c. To make it clearly understood, the writer should have stated at what time or times this operation should be performed. I will endeavor to supplement this defect.

The writer of the steam plough remedy, mentions one plan that will not kill them, namely, that "you may hoe or cut them off ten times without effect." Here we have two plans brought forward, one that will, and one that will not kill the thistle. Peter Shisler, I think, is astray when he says, "the subject of his letter has become almost threadbare." It will be time enough to drop the subject when we see field after field stripped of this invading scourge as fast as we now see them taken possession of. This year I have seen crops of grain, the bulk of which has been made up of fully fifty per cent. of thistles. Permit me to give the results of my limited experience, and to indulge in the hope that it may be useful to younger men, and, perhaps, even to the aged and grey-headed. To exterminate either weed, useful plant, or tree, I am persuaded the most effective method is the exhaustive principle, reduced to simple practice. During the first spring of my residence in Canada, I planted about four hundred rhubarb plants, and by August following they had attained a large size, and vigorous growth. An old female neighbor came to make some purchases, and passing this particular plantation of rhubarb, she at once drew up, and in an earnest, but friendly manner, requested of me to pluck it, and take it to market and make something of it, as the frost would come by and by, and destroy it all. I demurred, but she insisted. I said, "what shall I do for a crop next year?" She replied, "It will grow again; I have some roots this year, and I have plucked the last leaves off this very day." After the growing season had commenced next year, I asked my kind adviser how her rhubarb was growing. She replied, "Ah, man, it never grew any more." Last year, I cultivated a piece of mangold wurtzel for a farmer, choosing as foul a piece of land for thistles as Canada can exhibit. In starting, I said, "Now if this simple process of mine annihilates the thistle what will you say?" "Say," he replied, "why, that it is effectual; but I don't believe it." I saw him this fall, and without asking him, he told me that not one thistle has made its appearance since. I had applied the exhaustive system, and fully succeeded. Last year, also, a young farmer asked me to go with him to look at a piece of carrots. I found it an excellent crop, and about two inches high; also a perfect crop of thistles about fifteen inches high. They had been neglected for want of time. He then took me to another field where there was growing a crop of early potatoes, telling me this piece of ground was quite as bad as what I had seen; yet here there were no thistles. I enquired how he had managed. He said he had to keep the ground hoed down to save his crop. I asked if he allowed any of the tops of the thistles to ripen; he said no. Now, this young man had no idea that hoeing them had destroyed them. Twenty years ago, there was an interesting subject discussed in the *Gardener's Chronicle*, (edited by that master mind, Dr. Lindley). The subject was, the Brake-Fern. In a district of England, there was a common, on which the native crop consisted principally of the brake-fern. This plant yielded every fall, when ripe, a crop for bedding for cattle, etc. The demand gradually increased. Different parties (to secure their supply) began to mow them before they were ripe, and this continued till they effected the destruction of the plant, and so cut off their supply, without knowing the reason why. So in like manner if you mow off the asparagus stalks just as they have attained their full growth, (say, at the end of August,) it will not live to bear the second repetition, because the source whence the supply of newly organized matter comes is removed, and no buds are formed around the base of the stalks.

Since reading of the destruction of the brake-fern I have experimented (and doubtless thousands of others have also) on some of the most obstinate of weeds, and find no weed, plant, or tree, that will not succumb to the treatment of only removing its green leaves. Take, for instance, a seedling of any of the Brassica tribes, as turnips, and remove its first pair of leaves, and you at once destroy the plant. Although the roots are perfectly healthy, they possess no power or faculty of preparing any food even for their own extension. But when the bulb is formed, they will put forth, and bear the removal of many leaves; yet the end is certain—namely, Exhaustion. There are many plants, the roots of which take much more time to exhaust of their store of organic matter than the thistle; for instance, parsley, cloves, horse-raddish, couch-grass, brake-fern, and the common dock.

The conclusion of this article must, for want of space, be deferred till another issue.

Notes on Tree Plantations.

In a sugar orchard, with the trees in straight rows, about 6 feet apart both ways, an acre, at this distance, would contain 1210 trees. This would not be too close planting, as there are many places in the woods where full-grown maples can be found as close as this—the tall, clear, straight, and finest specimens are where the trees grow thick. Light troughs could be suspended along each row for the collection of the sap, and all running into one or more common receptacle, would dispense with the necessity of having a sap-pail to every tree. One row should be omitted at certain distances, as a roadway, for convenience in passing through the plantation with teams. On a rich soil, if the trees are planted and cultivated like Indian corn for a few years, until they completely shade the ground, they would be, in ten or fifteen years, large enough to yield some return, and after that period there would be few, if any, as valuable acres on any farm. The incisions, in tapping the trees, are invariably made too large. A mere gimlet hole is every way as good as a larger opening, and will quickly heal over. Many sugar orchards are being ruined by this cause. The trees are literally girdled to death.

Why is the opinion so prevalent that a tree is a thing of slow growth? It must be more from not giving thought to the subject than from lack of knowledge. A writer in the *Prairie Farmer*, in recommending the European larch as a timber tree for that region, gives the result of an experiment, showing its rapidity of growth. Trees at three years of ago were set out at four feet each way, and after growing eight years more, ranged from five to six inches in diameter at the base, and three to four inches, ten feet above the ground, and they were eighteen to twenty feet high. These measurements accord very nearly with others taken in New York, where trees, after growing ten years from transplanting, are about twenty-five feet high, and eight inches in diameter at the base. Everything connected with the growth of timber will soon become a matter of general interest even in Canada, as our forests are melting rapidly away, and necessity will compel us to raise timber plantations. J. F. C.

Stock Department.

The Winter Management of Stock.

In a climate like ours, subject to such extremes of temperature, the management of the domesticated animals is a matter of the greatest moment to the farmer, and demands a large share of his time and attention. This is particularly the case during our cold and tedious winters, when all kinds of live stock are sure to deteriorate very seriously in condition and value if not properly cared for. As the present winter has been characterized by an unusually early and severe commencement, a few practical remarks on this seasonable subject may not be without their use to many of our readers.

We propose treating the subject under the following heads: (I.) The necessity of a sufficient and regular supply of nutritious food. (II.) The importance of wholesome water. (III.) The advantages of artificial shelter, in relation to the health and thrift of animals, and the economy of their food. (IV.) Ventilation and cleanliness.

(I.) Food.—The fact that animal life and growth depend on food is recognized by all; still there are comparatively but few engaged in the practical management of stock, that have any clear conception of the materials that enter the stomach, and the way they are converted into blood, and ultimately into fat and muscle and the bony skeleton. All the materials of which animal bodies are composed previously existed in the food they consumed; consequently, a knowledge of the nutritious qualities of the different kinds of food specially adapted to the varying wants and habits of farm animals is of the utmost importance to the grazier and stock breeder. Besides, it is not enough to know what kinds of food best nourish live stock generally, but we must become acquainted with the modifications in the food and management of the same animals under different and particular circumstances. The horse, for example, must be differently fed and treated, as he may be required for the turf, the dray, the pleasure carrriage, or the plough. The ox also, for the yoke, receives a treatment very diverse from that which is necessary to prepare him for the shambles. Feeding and management, when conducted on correct principles, will always be so modified as to meet the variations of breed, constitution, temperament and practical uses of the domesticated animals.

These remarks have an important bearing on *breeding* stock. The mare in foal or the cow in calf certainly requires special feeding and treatment, that the purposes of nature may be realized in the fullest manner. The food of the mother during pregnancy should be specially adapted to the wants of the fœtus, which derives the materials of its body from the blood, which undergoes during this period the necessary changes. What are called the proteine compounds, consisting of fibrine, albumen, caseine, or legumine, more or less found in good hay, oats, beans, peas, Indian corn, &c., are naturally adapted to the wants of animals during the period of gestation. The ordinary grasses doubtless contain the mineral matters necessary to the healthy development of the framework of the fœtus, such as chlorine, sulphur, phosphorus, silicon, potassium, sodium, calcium, &c. A recent authority has suggested that a little powdered fluoride of calcium, mixed with the food of breeding mares and of foals, might ensure more perfectly the chemical composition of the young bones and teeth.

The different ingredients of food may be divided into two classes:—termed "flesh formers" and "heat givers," the relative proportions of which must be determined by experience, and the age, condition, and purposes of the animals to be fed. The fat, starch, and sugar, which the food contains, are principally expended by a sort of combustion in the system, in sustaining animal heat and the formation of fat, while the nitrogenous compounds build up muscle, and contribute mainly to animal strength. Horses, and young growing animals, require a large amount of flesh formers, which are to be found in oats, bran, and well cured hay, and they should be allowed sufficient exercise in order to effect their muscular development, and secure a sound constitution. Fattening animals, on the contrary, should be kept as quiet as is compatible with the condition of health, as all motion involves waste, and their food should be rich in oily and saccharine matters. Thus oilcake, or flax seed, is highly fattening, a moderate quantity of which, with Swede turnips and good hay, are most efficacious in bringing animals into the ripest condition for the butcher. As a general thing, a judicious mixture of food is much to be preferred to any one single kind, however excellent, and in the case of grain, bruising or grinding has been found a practice of great advantage. Cooked food in some cases is exceedingly benefical; such as the steaming of turnips, cabbage, chopped hay or straw, with linseed and other kinds of meal, and those who have practised these processes pronounce them very economical.

At this distance from the sea, salt is essential to the healthy digestion of farm animals; and although this compound (chloride of sodium) is more or less found in all food, yet our experience shows that small quantities periodically given tend to promote complete digestion, which modern research has proved requires the aid of hydrochloric acid. Large quantities of salt have been found to retard the growth and fattening of animals, but the most desirable amount can be in most cases determined by careful observation and experience.

Regularity in feeding is a matter of much more importance than most persons would imagine who have not directed their thoughts or observations to the subject. Animals in a state of domestication, when regularly fed, naturally adapt themselves to their meal hours as do human beings. But when their food is supplied at irregular and uncertain intervals, they, like their feeders, evince uneasiness, and often excitement, indicated by lowings and restlessness, conditions unfavorable either to healthy growth or economical fattening. Animals in the latter condition especially, should be *punctually* fed at least three times a day. We have often seen bad effects from giving animals too much hay or other food at a time, so as to produce a satiety of the appetite. Quantity, even in case of fattening animals, should be regulated according to their disposition to clear up each meal. Mr. Stephens, in his *Book of the Farm*, gives the following incident in reference to punctuality in feeding:—

"I had a striking instance of the bad effects of irregular attention to cattle. An old staid laborer was appointed to take charge of cattle, and was quite willing and able to undertake the task. He got his own way at first, as I had observed many laboring men display great ingenuity in arranging their work. Lowings were soon heard from the stock in all quarters, both in and out of doors, which intimated the want of regularity in the cattle man: while the poor creature himself was certainly in a state of bustle and uneasiness. To put an end to this disorderly state of things, I appointed his entire day's work by his own watch; and on implicitly following the plan, he not only satisfied the wants of every animal committed to his charge, but had abundant leisure to lend a hand at anything that required his temporary asssistance. His old heart overflowed with gratitude when he found the way of making all his creatures happy; and his kindness to them was so undeviating, they would have done whatever he liked. A man better suited, by temper and genius, for the occupation, I never saw."

(II.) Water.—The importance of a copious supply of wholesome water to stock could hardly be exaggerated, and can only be adequately appreciated by those who tend immense herds and flocks on arid plains, such as exist in many parts of our Australian colonies, and in other parts of the world. Water is the *drink* rather than the food of animals, yet it constitutes the greater part of their weight, and performs the most indispensable functions in the economy of all organized beings. The arrangements of farm buildings should be made so as to admit in the most convenient manner an ample supply at all times of this essential fluid to the confined animals, which require to receive it in as regular a manner as they do their food. It is to be feared that this punctuality is frequently neglected, and the consequence must be an injury to the animal that no amount of food can compensate. Water supplied to stock should, as in the case of man, be as free from all organic impurity as possible.

III. Shelter.—There is no department of Stock management so little understood, and consequently so generally neglected in this country, as that of shelter. Subjected as we are to such extreme degrees of temperature, how to best protect our animals from the injurious effects of both winter's cold and summer's heat, involves questions of practical and even scientific interest. The natural temperature of the horse, ox, and animals in general, is what is termed blood heat, 98° of Fahrenheit's thermometer. Now as our winter temperature is generally much below the freezing point, 32°, and occasionally sinks to and even below zero, it is obvious that the bodies of animals must be continually losing heat, as it is constantly radiating into the cold atmosphere. If this process had no limit, or was not arrested by vital forces, it is evident that the blood and other fluids of animal bodies would soon be converted into solids, and life would consequently cease. The discoveries of chemists and physiologists have, of late years, thrown much interesting light on this hitherto complicated and difficult subject. The temperature of animal bodies is kept up to a pretty uniform standard of 98°, whether exposed to the excessive heat of the tropics, or the equally excessive cold of the polar regions; and this uniform condition of animal heat is essential not only to the health but also the life of animals in all parts of the world. Heat is kept up in the bodies of animals to about 98° by the combustion in the lungs, or in the capillary vessels generally, occasioned by the chemical action of oxygen on the fat, starch, and sugar, contained in their food, something similar to the burning of coal in the furnace of a steam-engine,—the matters expelled being in both cases precisely similar, viz.:—carbonic acid, water, and vitiated air, escaping in the former instance by exhalation from the lungs, and in the latter from the furnace of the chimney. Animal temperature, therefore, is entirely maintained at the cost of the blood, which is formed exclusively from the food. Nor does the blood fail to suffer loss even in the preparation of such substances as starch, sugar, and oil, before they become fit to generate animal temperature. It seems possible that an excess of such kinds of food as are merely fitted to maintain animal temperature might sometimes be afforded, when the temperature derived from the ordinary disintegration would be sufficient, so that all the labor of the system would be expended in vain. "No doubt this can hardly occur when oxen are in the course of being fattened for slaughter, since, if the present amount of muscular disintegration be sufficient for the maintenance of the standard of temperature, any superfluous starch and sugar being changed into fat will be deposited in the tissues, and improve the animal's condition. But in the simple rearing of the young animal, during the period preceding the preparation for the shambles, it seems that attention should be given to adjusting the due proportions of azotised and non-azotised aliment—that is to say, of flesh-forming and heat-giving food. There is, no doubt, an appropriate amount of muscular exercise required for the proper growth and development of

the young animal, even when its final destination is merely the shambles; so that it will always be a point for skill to determine when the preponderance should be given to the aliment which repairs the waste for mere heat giving, when to that which renews the blood after it has been exhausted by the repair of the active organs of locomotion."

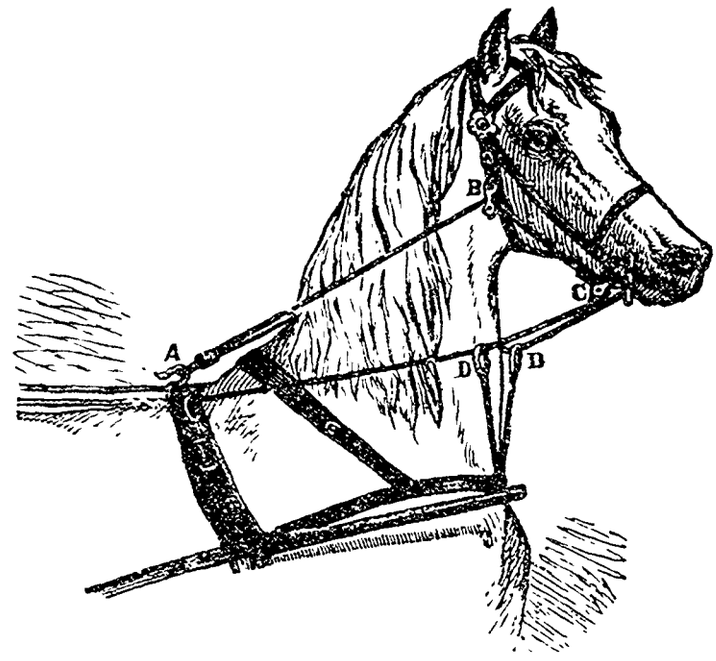
It thus appears obvious that in a country like this, subjected to long and severe winters, protection against cold not only promotes the comfort and health of animals, but that it also economizes their food to a degree few, perhaps, comprehend. Cold draughts rapidly lower the temperature of living bodies, which in such circumstances consume a larger amount of aliment to keep up their natural temperature than would be required if they were surrounded by a warmer atmosphere. In short, when animals are exposed in this manner, much of the food they eat is consumed merely to keep up the requisite degree of heat, that would otherwise be converted into bone, fat, and muscle. Hence the necessity of suitable buildings for the proper management of stock. Where, however, such superior accommodation cannot be obtained, much may be done in the rudest structures by the exercise of a little ingenuity and ordinary attention, by way of protecting a farm animal against the inclemency of the weather. To see them as one sometimes does, exposed to the rigors of winter in an apology for a building, or shivering under a rail fence, violates alike the feelings of humanity, and the most ordinary and obvious rules of correct economical management.

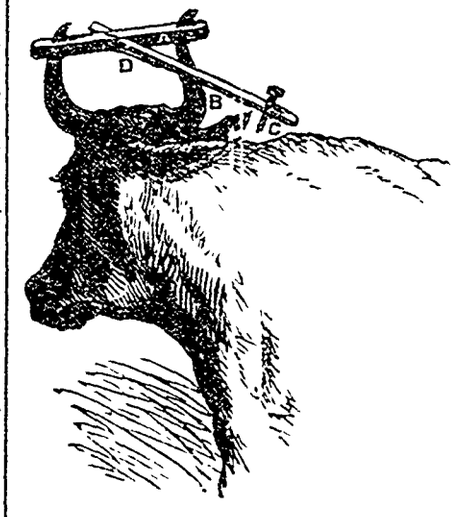
IV. VENTILATION AND CLEANLINESS. While we strongly insist on the stock being warmly housed and protected from cold draughts, both for comfort and economy, it must be distinctly understood that all our arrangements for the accomplishment of these objects should be perfectly compatible with a constant admission throughout the building of pure atmospheric air, without which the healthy functions of the animal body cannot be performed. We have no space for entering on an exposition of the philosophy of this great fact, which in the abstract is readily recognized, but in practice too often unheeded. In this country, it is true, our animals suffer far more from too much exposure than from close and confined stables and byres; but in brick or stone buildings, and sometimes in wooden ones too, there is frequently a want of efficient ventilation, that is, a ready ingress of a sufficient amount of fresh air, and the egress of that large amount which has been rendered foul by breathing, and the exhalations arising from the bodies of animals, their excrements, &c. Sheep, perhaps, are more likely to suffer from close confinement and want of fresh air than any other kind of live stock; they suffer little inconvenience from cold, provided they be kept dry, and allowed plenty of room and exercise. Indeed all young and breeding stock require freedom to promote healthy growth and development. Fattening animals, on the contrary, should be kept as much confined as is compatible with a state of health, for all motion involves waste. Under all conditions, however, a free admission of pure air is equally indispensable.

Cleanliness, in the winter management of stock, is of the greatest importance. The solid excrements should be regularly removed, and systematic attention paid to general cleanliness, as much as in the cases of punctuality in feeding, watering, and ventilation. Clean, dry straw for bedding animals, is a bad conductor of heat, and consequently keeps them warm—a condition most favorable to thrift; and a building from which all organic matter in a state of partial decomposition is regularly removed, will in a great measure be free from injurious miasma, which, mixing with the air and entering into the lungs, becomes a fruitful source of disease and death.

Improved Check and Driving Rein.

OUR engraving, copied from an American exchange, shows a method of connecting the check and driving reins on single horses which secures to the driver some important advantages. At A the check rein is attached to the usual fastening on the saddle of the harness, and immediately in front of this it is looped firmly together. At this point the reins divide, one passing on each side of the horse's neck, through the small light pulleys, B and C, and back through the martingale rings, D, and the terrets, to the driver. This contrivance enables the driver to exert great power on the bit, and to control to a great extent, the position of the horse's head. The animal can also lower his head to drink without necessitating the driver's descent from his seat to loosen the check rein. The contrivance can be readily attached to any harness with trifling expense, and is worthy attention from those who drive hard-mouthed and unreliable horses.





Preventing Cows from Taking Down Bars.

MESSRS. EDITORS—Four years ago I bought a cow, which had a habit of taking down bars whenever she desired, and going wherever she pleased. I tried various ways to cure her, such as putting boards, leather aprons, &c., over her eyes, but they availed nothing. If she ran against the fence, and it was possible for a rail to be taken out, she would do it, even when blindfolded, much quicker than a man could. After repeated experiments, I made the following machine, which completely cured her. I kept her two years afterwards, but she never took down a bar after it was put upon her head.

A is composed of two pieces of wood, each one inch thick, fitted to the horns and then bolted together. B is a piece of wood two inches wide and three-quarters of an inch thick, fitting loosely into a mortice in A, so as to play up and down easily, and secured by a bolt. C is a 2½ inch screw, and turned in or out, as occasion may require. D is a thin steel spring, six or eight inches long, fastened to A with a screw, and running through a staple in B, to hold it in place. This spring is merely to hold up B, so as to prevent the pointed screw from coming in contact with the cow's neck when she is feeding or minding her own business; but, when she undertakes to take down a bar or rail, the weight of the bar coming upon B, and the spring D being very limber, the screw is forced into her neck, and she jumps back with astonishment, leaving the bar in its place.—*Cor. in Country Gentleman.*

"Native" Hogs Classified.

WE extract from an American exchange, the *Farmers' Advertiser*, the following description of certain undesirable breeds of hogs, specimens very similar to which are sometimes to be met with on Canadian farms:

"This old stock of hogs might, for convenience, be classed into several varieties, and a short description given of each variety, so that farmers could know and avoid them.

First, those that are of a miserly disposition, have a will and a determination like iron, and bore their nose into the ground as if they were trying to stand on their head, may be called the *subsoil* variety.

Another variety is a tall, razor-backed kind, that are always hungry, will grab an ear of corn and run a half mile before they stop to eat it, and when opportunity occurs will climb a rail fence to where the rails are some distance apart, and then either go through or over it. This variety is always known by the marks it bears of many a well and hard fought battle with the neighbourhood dogs, and may be classed as *fence-oilers* or *windsplitters*. This variety is best adapted to the wants of those farmers who are strong advocates of the "economy of labour," as it will save them the labour and expense of building corn cribs.

The remainder of this species of hogs may be classed under one variety, and will come up to the idea of what some moralists conceive to be "total depravity." They are a half dead and half alive kind of things, that trot before and canter behind when required to get up a motion. It usually requires two of this kind to make a shadow. They appear to be cross-eyed, but upon a close examination it will be found that it is not the case, but only an optical illusion, caused by both eyes coming so near out of the same hole.

This variety originated at Lynn, Mass., the town of shoemakers, where it was bred exclusively for its bristles, and may be called, for the want of a better name, *old liners*."

Veterinary Department.

Influenza in Horses.

This is a disease which is often experienced amongst horses during the end of winter and early part of spring; it is a specific fever, and has a tendency to assume various forms, very often exhibited as a catarrhal attack of the air passages, and also tending to involve many different organs of the body, and more particularly the great centre of the circulatory system. In some instances the attack is so slight as only to consist of a very mild form of sore throat, accompanied with a swelling of the parotid gland; whilst in other cases it appears in a malignant form, soon followed by great weakness and loss of nervous influence, accompanied by a fever of a low typhoid kind. The whole respiratory tract appears to experience an inflammatory attack of a sub-acute form, often extending to the heart and to its covering, (the pericardium). Influenza is generally most prevalent and always appears in a severe form in damp, low-lying localities, where the drainage is deficient, and is also of a more serious nature when animals are standing in stables where the air is very impure, owing to the want of proper ventilation and cleanliness—and more especially among horses that are in low condition. In these cases, where there has been an insufficient supply of nutritive food, the system is not in a fit state to withstand any debilitating influence. This disease frequently occurs in an epizootic form, when a great number of horses will become similarly affected. It has been supposed to result from some atmospheric cause or agency. At certain periods the disorder will run through entire stables, attacking all and sundry; whilst again, the attack will be confined principally to young horses, of the age of from two to six years. At one time it was the opinion of some writers that this disease was contagious in its nature. This, however, is not the opinion of veterinarians of the present day, and influenza is not considered a contagious disorder. The name influenza, we believe, originated with the Italians, as they supposed it was produced by the influence of the stars. The symptoms of influenza are somewhat variable, and in its simplest form it bears some analogy to common fever. The horse shows extreme dulness, and a great disinclination to move. He hangs his head, and the coat looks bad, losing its natural glossy appearance and becoming staring and dusty looking. The eye is also dull, the upper eyelid is partially closed, and there is an increased discharge of tears, giving the eye quite a watery appearance. The circulation is greatly altered; the pulse is quick and exceedingly weak in cases where the depression is great, the pulse at the jaw being very indistinct. The ears and legs are cold, and the mouth is hot and sticky. The respirations are more or less altered according to the intensity of the attack, in mild cases there is little difference in the respiratory movements. As the heart has a great tendency to become affected in this complaint, there will sometimes be regurgitation of blood in the jugular vein, which will almost be pulsating like an artery, and the sounds of the heart are also increased, as the ear applied to the left side can very easily detect. The throat is sore, and generally a cough is present, which is easily excited by pressure on the head of the windpipe, (*larynx.*) The appetite is completely gone, and in fact the animal can scarcely be induced to look at food. He soon shows signs of great debility, and when attempting to walk he reels and staggers, and it is only with difficulty he can be kept on his legs. The above are the principal symptoms observed when the disease is of a very debilitating nature. In mild cases the respirations are very little disturbed, and the appetite is not completely gone.

The sequels of influenza are inflammation of the lungs and pleura, and the formation of water in the chest, and also in the pericardial sac. The latter is known as *hydrops pericardii*, or dropsy of the pericardium. The inflammatory action may be set up in the lungs or pleura in a very insidious manner, and it may have gone on to a considerable extent before the more alarming symptoms are noticed, especially by the casual observer. There will then be perceived flapping of the nostrils and labored breathing, and a heaving of the abdominal muscles; the pulse will be increased, often ranging one hundred beats per minute, and very weak; the debility increases, and the horse stands persistently. Very often there is a discharge from the nostril of thick yellow matter, and when the throat is much affected this is a very good symptom. In cases that are likely to terminate fatally the discharge has a very offensive smell, and the extremities increase in coldness, and the patient refuses both food and water.

The signs of returning health are a more regular temperature of the body, the pulse becoming slower, the appetite returning, the eye looking brighter, and the bowels being moved in a regular manner.

In the treatment of influenza, the strength of the patient must be supported. If what has been called heroic treatment is resorted to, viz., bleeding and purging, influenza proves a very fatal disease. From the beginning the strength of the animal must be sustained. The horse should be placed in a comfortable airy box or stable, and the body clothed according to the state of the temperature. It is generally advisable to give stimulants and tonics from the first, as a quart of good beer three times a day, in which might be mixed one ounce of nitrous ether. The bowels should be opened gently by means of clyster, and if the throat is very tender a stimulating embrocation should be well rubbed into the submaxillary space, or head of the windpipe. Of course many of the stimulants used in veterinary practice are useful in influenza, but we just mentioned such as can be easily procured. The horse should also be encouraged to take food that is easily digested, and the clothing should be removed at least twice a day, and the body well rubbed over. As recovery takes place slowly it is greatly expedited by the use of tonics.

The Dairy.

Suggestions to Canadian Cheese-Makers.

To the Editor of THE CANADA FARMER:

SIR,—In October I had the pleasure of visiting some of the dairy districts and cheese-factories of Ontario, and now offer a few remarks and suggestions concerning the latter.

While I was everywhere generously received—especially by my friend Harvey Farrington, Esq., of Norwich,—and while I found many things to be approved, and apparatus in some of the factories better adapted to their use than I have ever met in the States, yet, in some other and more important matters, I cannot but believe that there is room for improvement.

In my judgment the factory-system of Canada is in some respects radically wrong. With us, *good water and abundance of it* is deemed an essential thing to insure success; with Canada cheese factories this is almost entirely overlooked. It would not be difficult to show how grave a mistake your dairymen are making, nor would it be risking much to say that some of your factories will be short-lived on this account.

Lack of water necessitates the making of cheese twice daily. Not only is this night work unnecessary—it is positively detrimental to the product of your dairy. One of the prolific sources of bad flavor in cheese arises from the fact that milk is not sufficiently cooled before being warmed and "set" for cheese. The temperature of the milk should be reduced to about 60°. Where the animal heat remains, the result is similar to that which ensues when meat is put into pickle before cooling. Bad flavor with us arises in part from not cooling the morning milk—yours, from cooling neither morning nor evening.

Besides, it is felt—and by none more than by Mr. Farrington—that even when milk is properly cooled, it is better that it should have attained an age of twelve hours or more before being reduced to curd. Exactly why this is so, or what chemical change comes over it, it is difficult to say. That the product is better when the milk is somewhat stale, is fully believed by many of our best cheese-makers.

In the same connection, it is pertinent to ask why it is necessary or right to keep so many persons laboring at night? Why the extra expense of keeping under pay two sets of hands, when the result is only a positive disadvantage to the cheese?

Such thoughts must have impressed themselves upon the minds of the intelligent cheese-makers of Canada, who will not be slow, I trust, to apply the remedy.

If a bountiful supply of good water cannot be obtained, let ice be used, or the new milk "Agitator."

Again, I am convinced that with us, as with you, immense quantities of cheese are injured in flavor by the practice of salting the curd before it is sufficiently drained and cooled, and by dipping it into the hoops while yet too warm.

I found that many of your factories had on hand (Oct. 25 to 30) nearly all the cheeses made since the beginning of the season. Further experience will convince your dairymen that all cheese made up to August—unless quite perfect in make and flavor—had better be sold as fast as cured in sufficient quantity.

I tried many cheeses in various factories, and found many of good quality; candor compels me to add that I also found many that were execrable.

I noticed universally that your cheese-makers seem to have no faith in highly colored cheese. In this, I think, they are mistaken. To England we look for our best market, and there we find that London is the market which best appreciates strictly fine cheese, and is willing to pay the best prices for it. But London calls nothing strictly fine which is not highly-colored, as well as quite right in every other particular.

Many of your dairymen are, doubtless, as well or better informed in regard to cheese-making than I am, but I have thought that the above suggestions may be of benefit to others.

Very respectfully yours,
GARDNER B. WEEKS,
Sec. Am. Dairymen's Asso.

VERONA, Oneida Co., N.Y., Dec. 11, 1867.

NOTE BY ED. C. F.—We are much obliged to Mr. Weeks for the above letter, and hope it will not be lost on our dairymen. That there is much truth and force in the criticisms made by our correspondent, we are but too well persuaded; and we repeat the conviction heretofore expressed, that if the cheese factory system is to succeed in this country, it must be by dint of unremitting care, the most scrupulous cleanliness, and rigid observance of the conditions on which alone cheese of first-rate quality can be made.

The Mammoth Cheese in England.

To the Editor of THE CANADA FARMER:

SIR,—I have great pleasure in handing you extracts from Liverpool newspapers sent to me by my Liverpool House, referring in flattering terms to an achievement of Canadian skill and enterprise in dairy production.

The Cheese I bought of Mr. Harris, in New York, after it had gone through a course of exhibitions in the United States, and shipped it to my firm in Liverpool, who sold it to the gentlemen referred to in the paragraphs.

Many of your readers will remember the "monster," as it appeared at Kingston and other fairs, and will be gratified that the efforts of their countrymen, Messrs. James Harris & Co., of the Ingersoll Factory, have received so ready and full recognition from the people of the Old Country, who are so able to judge the qualities of Cheese, and quick to understand the mountains of difficulties to contend with, in bringing the manufacture of such an enormous mass to a successful completion. JOHN T. DAVIES.

Ontario Pork House, Hamilton.

The extracts are as follows:—"The largest cheese in the world, made in Canada, and brought over by the *City of Antwerp* from New York, was drawn in procession from the Huskisson Dock, by four richly-caparisoned greys (perhaps the finest draught horses in the world), kindly lent by Messrs. Thomas Rigby and Robert Blezard. It was accompanied by a band of music from H.M.S. Donegal, and followed by six carriages, with grey horses and postillions, containing the importers, Messrs. John Reynolds, Robert Price, and Henry Thompson, and several of their friends, forming an imposing cavalcade.

"THE 'SAMPLING' CEREMONY.—Yesterday, at the invitation of the importers, a large number of gentlemen attended for the purpose of viewing, inspecting, and sampling the mammoth cheese recently brought from Canada West, previous to its being open for public inspection. The gentlemen present having assembled round the monster cheese, the ceremony of sampling and tasting took place. An extremely unusual cheese-taster was employed for the sampling in the shape of an auger about three feet in length. Each gentleman tasted, and pronounced it to be of excellent quality. Several speeches were delivered very complimentary to the cheese and its makers and importers. After some remarks by Mr. Councillor Samuelson and Mr. J. Hastings, Mr. Alderman Woodruff thanked the gentlemen who had undertaken the speculation of importing the cheese, for their kind invitation. He expressed his surprise at seeing such a magnificent cheese before him, the production of one of our own colonies, and pointed out the advantages that must be derived by the mother country in having such enterprising people in her colonies. Mr. Picton also expressed his surprise at seeing such a wonderful cheese. Canada, he said, by its production, had shown itself to be one of the finest colonies that England possessed. Not only was Canada 'a land flowing with milk and honey,' but it was a place where many of the teeming population of this country might go and reap a handsome reward for their labours, if they only exercised the energies they possessed. Addresses were also delivered by Councillors M. Williams, Harrison and Rigby. Mr. Rigby said he was a man of few words, and all he had to say was that he wished every poor man out of employment about 'Change had a good slice of the cheese and a loaf of bread. (Applause.) He (Mr. Rigby), with the consent of the present owners, offered to make a present of the cheese to the poor of the town, providing a gentleman could be found who would supply the necessary bread to eat to it. (Applause.) Mr. Tarbuck, of the Rosehill Brewery, said if the offer just mentioned was accepted, he would supply the beer required to drink to it. (Renewed applause.)—Mr. J. Hastings proposed a vote of thanks to the gentlemen who had shown so much public spirit in securing the cheese for the 'good old town of Liverpool.'—Mr. J. Reynolds, one of the importers, in responding, said he hoped the gentlemen were perfectly satisfied the cheese was not a vain boast, but a thoroughly good British colonial production. The cheese is now on view to the public. The admission is sixpence, and the importers intend to hand over a portion of the proceeds, after the expenses of exhibiting are defrayed, to the public charities."—*Liverpool Mercury. Nov.* 30, 1867.

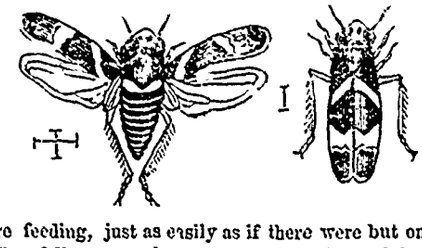
Entomology.

Insects Injurious to the Grape.—No. 3.

EVERY tree, shrub, and plant, every species of weed, and flower, and grass, every living green thing, indeed, has one or more species of insects that prey upon it. Some eminent naturalists have computed that, on the average, there are six species of insects infesting each species of plant; if this be the case, we must regard the grape-vine as being particularly unfortunate, as it has far beyond the average number of insect enemies. In our two previous articles on this subject we have enumerated no less than *sixteen* species that live either entirely, or to some considerable extent upon the grape, and yet we have only gone through the Beetles and Caterpillars. We have still a long list of offenders belonging to the other orders, whose misdeeds we shall have to expose before we can complete the task that we have set ourselves.

Our last article was taken up with Caterpillars of various species of moths; we naturally turn from them to the False-caterpillars of Saw-flies, one kind of which oftentimes proves very destructive to the grape-vine.

THE VINE SAW-FLY, (*Selandria vitis*, Harris), has not yet, we are happy to say, been found in Canada, but as it is very common in various parts of the United States, it will be advisable to give some account of it, in case any of our readers should find it upon their vines. The larva which does the mischief, is, at first sight, very like an ordinary caterpillar, but a little inspection will show that it has too many legs to be a true caterpillar; these have, at most, sixteen legs, but this saw-fly larva has no less than twenty-two. Like most of its kind, it is very fond of company, and seems filled with brotherly love; for the whole brood from a batch of eggs keep together, feeding side by side, in regular order. By means of their "Co-operative Society" they are able to accomplish an amount of mischief that, individually, would be utterly beyond their fondest hopes; but after all, their "union is" *not* their "strength," for a whole family can be picked off with the leaf on which they



are feeding, just as easily as if there were but one. When fully grown they measure about five-eighths of an inch in length, and are round, tapering towards the tail. The two extremities are black; the body is light green, with two rows of black dots on each segment; beneath, the body is yellowish. After their last moult, like the larvæ of the currant saw-fly, they change their appearance very much, coming out in a complete new suit of yellow. July and August are their months for feeding, then they descend to the ground and make themselves earthen cells in which to pass the pupa state; and finally re-appear in the form of four-winged flies, with jet black bodies, red thorax, and yellowish legs; the wings are smoky white, with dark-brown veins. The females lay their eggs on the under side of the terminal leaves of the vine.

Many insects, such as the Weevil, Midge, Hessian-fly, Wire-worm, Army-worm, etc., have a wide-spread and well-deserved notoriety as destroyers of some of our most valuable products; to these may now be added a name that is fast acquiring an equally-ill reputation, and that bids fair to become an alarm word to vine-growers; we refer to THE THRIPS. The name "Thrips," like the term "Bug," has been applied—or rather misapplied—to so many diverse insects, that for a long time it was exceedingly difficult to make out what particular kind was really meant. To Mr. Walsh, however, is due the credit of unravelling the mystery and distinguishing between the true and bogus Thrips; he, it is, has solved the riddle, and shown that the Thrips is no other than the GRAPE-VINE TREE-HOPPER (*Telligonia Vitis*, Harris).

The above cut, (from the *Practical Entomologist*) represents this insect considerably magnified; fig. 1, is the perfect insect with its wings expanded; fig. 2, the same with closed wings. This may be taken as the typical species, as there are half a dozen more leaf-hoppers of the same genus found in the United States and Canada, which only differ from each other in color. In the species before us the colors are pale yellow and red. This insect makes its appearance in June, in the larva state, which differs only from the perfect, in being destitute of wings. At first, of course, it is very small, and is not readily detected, living—as it does always—on the under side of the leaves, but it soon grows larger, and its work becomes manifest. It is furnished with a beak or sucker, through which it imbibes the sap of the vine, and causes the leaves to wither and shrivel, killing them frequently, and even sometimes destroying the vine. It generally apears in very great numbers, and makes up in that way for its diminutive size. It is very quick in its movements, and jumps from leaf to leaf with surprising agility when disturbed. About the month of August they obtain their wings, and become even more active than before. Being so small, and occurring in such great numbers, it is difficult to suggest a remedy; dusting with sulphur and lime, and fumigating with tobacco under a moveable tent, are recommended.

The Leaf-hoppers belong to the great tribe of Bugs properly so called (*Hemiptera*), and so, also, do the next enemies that we come to, the GRAPE-VINE PLANT LICE (*Aphides*). In their general appearance to the naked eye, and in their habits, these tiny insects bear so much resemblance to their kindred on the Hop, and other plants, that it is unnecessary to occupy our limited space with any special description of them. For an account of their natural enemies and the most effective remedies that can be employed against them, the reader is referred to page 268 of last volume.

Much akin to these aphides, but differing from them in living under cover instead of openly on the surface of the leaves, are the GALL-PRODUCING LICE of the vine; whether they belong to the *Aphis* or *Loccus* family, or to some new family between the two, as Dr. Shiner suggests, is still a point of controversy amongst Entomologists. It is unnecessary for us to enter into the question here, as our work has more to do with the practical than the scientific part of Entomology.

Most observant grape-growers have, probably, noticed some vine leaves studded over with numbers of green excrescences, varying very much in size and shape, but for the most part rounded, and about as big as a pea. These curious bodies are galls, and each one is produced by a female louse. The mode of construction is as follows:—"The mother insect punctures the leaf on its upper surface early in the season, which operation being continually repeated in the same spot, causes an unnatural hollow, lined with white woolly hair. In this hollow the mother-louse takes her station, sucking away at the sap, and still further irritating the part, till finally the hollow enlarges, its mouth gradually closes, and you have a green fleshy bag, with its mouth tied up pretty tight, and the mother-louse inside. If you examine a leaf full of these galls, you will see on the upper side of the leaf a little woolly place opposite each gall on the lower side of the leaf. This is what remains of the woolly hollow which originated the gall." These galls are found sometimes upon the tendrils, leaf-stalks, and tender limbs, as well as upon the leaves. If sufficiently numerous at any time to become injurious, the most obvious way to get rid of them is to cut them off and burn them, and thus effectually prevent their increase.

A few other insects of various kinds are sometimes found upon the vine, but the injuries they inflict, if any, are so very trivial that it is needless to discuss them here. The account we have now given of "Insects Injurious to the Grape" we do not by any means consider to be perfectly complete, as observation and study are continually bringing to light new facts respecting the natural history of our insect enemies; but we have striven to give a brief account of the most injurious and notorious foes to the grape, in order that the cultivator, when he meets with them, may know to some extent with what he has to deal and how to deal with it. We shall always be glad to hear from any of our readers who meet with these or other insects on their vines, and shall endeavor always to give the best information in our power.

Our Social and Industrial Condition.

To the Editor of THE CANADA FARMER:

SIR,—I am occasionally favoured, in a private manner, with suggestions and information generally more or less practical and important, in relation to the condition of our agriculture and the improvement of the farming community. The following letter was received a short time since, and perhaps you will give it, with a few remarks of my own, a place in your useful and widely circulated journal. The writer's name and address I am not authorized to make public. The letter is as follows:—

SIR,—I have seen a number of your communications in THE CANADA FARMER, descriptive of the progress in agricultural matters in different parts of the Province, and I think much that you have said both truthful and judicious. But stranger though I be to you, and in a very different walk of life, being a practical farmer from early youth, I respectfully beg to suggest a few remarks from my stand point, as an interchange of ideas from those in very different positions may be of mutual advantage sometimes.

Your correspondent, both from experience and observation, is of the opinion that the great drawback to agriculture in Canada is the want of good, willing workers, in the shape of ploughmen and dairy maids. Of all other classes we seem to have a superabundance already in this new country. The streets of our cities are thronged with idlers, at every railway station or wharf there are to be seen crowds upon crowds who seem to have no lawful calling. But look at the harvest field, and you will see one man, or it may be two, working to the very point of endurance, and who are thus made strangers to the joys of harvest as they should be, were all to turn out who are able. The very few who have to gather in the fruits of the earth in America are so overtasked that their spirits are broken, and their very countenances assume a desponding cast, for they well know that there are thousands in the country of cooks, chair-rockers, piano players, novel readers, buggy riders, whi-key drinkers, visitors and pic-nic-ers, and an endless variety of the non-productive classes, who by some means will manage to get the benefit of their honest industry.

Now, sir, were our public teachers and agricultural publications to endeavour both by example and precept to stir up both men and women, all ranks and all ages, to take to farm work according to ability, your correspondent thinks it would do more good than all that is written about chemistry and the strata of rocks. As we learn both from sacred and profane history, husbandry has always been considered the most honest, the most useful, the most healthy and the most honourable of all employments, while the merchants and money changers have been termed "a den of thieves;" so that it is difficult to understand how it is in this country that almost every young person seems to think it degrading to work on a farm. In the course of your peregrinations through the country, you must often have been struck with the disparity of the numbers in the harvest field and of those around the farmer's table; this I take to be a greater drawback on farming in America than the midge in the wheat, or the weevil either. There is much talk about education in this age, but I often suspect that there is a popular delusion upon what a good education really is. I can find plenty of help to read newspapers, but have to clean out the cow-house alone. I find men who can tell me the length of the Mississipp, but cannot tell how far apart potato drills ought to be, and women who can play on the piano, but cannot make a shirt, far less butter or cheese.

As a very great number of our migrating population have been, for a shorter or longer time, the inmates of boarding houses or hotels, it is my impression that far too many boarding house manners are now introduced into the private circle of the farmer's family—too many either for health or economy. We all know that in a well conducted farming establishment there may be an ample supply of all the essential elements of food, and of the most genuine, healthy, and nutritive kind, at all times; but in the farmer's domestic circle there can be no propriety in imitating the five-dollar-a-week style of the hotel, with all the variety of dishes, the jingle of crockery and crystal, foreign ingredients and worthless condiments, which neither make blood, bone nor muscle, but merely act on the nervous system, and drain the purse; while the farmer, not perceiving how the avails of his labour are leaking out, is apt to blame the country, or the climate, or it may be the Canada thistle.

My correspondent is mistaken if he supposes that from my stand point I have been insensible to the evils of which he complains. On several sitting occasions, I have acknowledged and deplored their existence. Every one conversant with Canadian society, rural or urban, must have observed a growing tendency in our youth to avoid as much as possible the duties that involve hard and serious work. In this respect we are not peculiar, as the same habit of mind is equally evinced by our neighbours on the other side of the lines, and also, I dare say, in various degrees, among the people of other countries.

I think, however, that my correspondent has stated the case in a manner somewhat one-sided and extreme. While deploring the fact that too many young people of both sexes show an indisposition to undertake cheerfully and in right earnest the indispensable duties of country life, I must say that, from a pretty extensive acquaintance with Canada and its people, I have good reason to hope that these evils, however serious, are not so extensive as the strong language of my correspondent would indicate. I have been the temporary inmate of hundreds of Canadian farmers' families, and as regards industry and domestic comfort, they will, I believe, compare not unfavourably with similar classes in other countries. The great error into which young men in the country are liable to fall, consists in forming a low estimate of the pursuits of rural life, of not appreciating the true worth and dignity of human labour, and of indulging in utopian expectations of the ease and attractions of life in cities, the inmates of which generally work as hard, bodily or mentally, as do the people of the country. It is a palpable mistake to suppose that young men can rise in life, either in professional or commercial pursuits in cities, without good natural talents accompanied by indomitable industry and perseverance. Among all these classes are to be found men of the strictest probity and unsullied honour.

To induce young people in the country to follow the pursuits of their fathers in cultivating the soil, they must be imbued with a love of rural life, by gradually opening their minds to the perception of the beauties and wonders in nature by which they are every day surrounded. They should be taught both by precept and example that agriculture is the most important and healthful of all industrial pursuits, and that now-a-days it is as much a science as an art. Just as the mechanics of agriculture advance in the improvement of implements and machines, the muscular drudgery of the farmer diminishes; and it is impossible to set limits to the operations of these ameliorating agencies. Farming for the future will make a greater demand on brain than muscle, and as a business, intelligently conducted, will afford profits equal to the average of other pursuits.

In journeying through the country, I have certainly often had to regret the evident want of a sufficient number of "willing workers" on the farm, and the extensive labour to which a few have been consequently subjected, particularly during harvest, when, no doubt, the physical strength of many people is tried to an extent that is incompatible with health and longevity. Under such circumstances it must be admitted that our agriculture cannot advance, and its profits must be seriously reduced. The only adequate remedy I can see to this state of things is a constant stream of immigration, sufficiently large to meet our annually increasing wants. It is to be hoped that this vital subject will receive the earliest possible attention both from our general and local legislatures.

Toronto, Dec., 1867. GEO. BUCKLAND.

HAND POWER STUMPING MACHINE.—Mr. H. Y. Read makes enquiry respecting: a "Hand Power Stumping Machine," mentioned in one of our issues in 1865, as manufactured by Messrs. Patterson & Bros., of Richmond Hill. We have written to Messrs. Patterson on the subject, but having received no reply, are led to suppose that the machine referred to is not now manufactured.

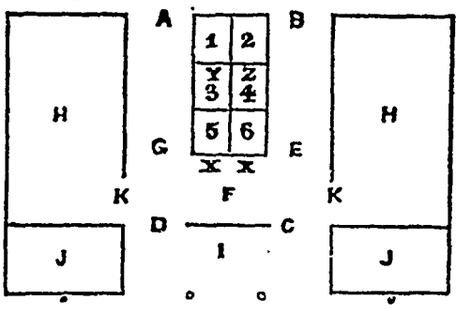
Plan of a Barn.

A CORRESPONDENT, Mr. White, of Collingwood, has sent us the following communication and plan, which we consider of merit sufficient to justify their publication:—

Three points should be aimed at in building a barn.

First,—Room to mow away grain; Second,—To be able to mow the grain with as little labor as possible; and Third,—To secure as much convenience as possible for threshing, storing away grain, and preserving the straw and chaff for future use.

The following plan, which has been adopted in building a barn for Mr. W. White, Collingwood township, during the past summer, seems to combine these requisites:



A, b, c, d, 12 feet double doors; e, f, g, barn floor: h, h, mows; 1, 2, 3, 4, 5, 6, bins; i, stoop; j, j, stables with doors at o. The centre of the bins is made fast; the sides next the floor and the ends are made with loose boards to slide in a grove, so that access can be had to any bin independent of the other. With a barn about thirty feet wide the boxes in a threshing machine will be about at e, or g, on the floor, and by having the sides of the bins all up, a person at x can take the boxes and empty them in bins 1 or 2, putting in the ends y, z, as they are filled up, and so on the other four bins. To find the capacity of a bin in bushels, multiply the number of cubic feet by 8 and cut off the right hand figure. Thus, a bin 6 H 7, and eight feet deep, is equal to 336 solid feet, which, multiplied by 8, gives 268.8 or 269 bushels. This rule allows a trifle for waste. When threshing on one side the chaff can be run through on the other, and when one mow is empty by having the openings at k, all the feed can be kept in the barn close to the doors for feeding out. The granary is 8 feet high, and above it is a good sized mow, also over the doors and over the stables. The barn floor is all sleepered, and the mows laid with double inch boards, the rest of the floor with 2-inch plank on inch boards. The top soil is all taken away from under the barn, and plenty of room left for dogs and cats as well as rats and mice.

The Divining Rod, for finding out Suitable Places for Digging Wells.

To the Editor of THE CANADA FARMER:

SIR,—You will perhaps be surprised at being asked for your opinion respecting the supposed virtue of a small hazel fork revolving in the hands of seemingly gifted persons, over certain places only; as in the following case, which lately came under my notice.

A young farmer residing in the neighbouring township of Roxborough, being about to dig a well, was at a loss to select a suitable place, as several not very successful attempts had previously been made to get water. He was advised by some of his neighbours to secure the services of a person who accidentally happened to be in the neighbourhood, and was said to be an adept at finding out the desired spot by means of the divining rod. Having provided himself with the necessary prong, he walked over the ground in several directions, in parts of which the fork was

noticed to rotate violently, in others less so, while in other places it remained quiescent. But on moving along a line supposed to correspond to a subterranean rill, it was continually in motion.

The experiment was performed in the presence of several, some of whom held the wrists of the experimenter, in order to satisfy themselves that he did not deceive them, after which they tried, but had no *manifestations*, with the exception of the farmer, who, although sceptical, found that he was as good a *medium* as the other.

The same trial has since been several times repeated, with always like results, and a well was dug in one of the indicated spots, which *happened* to yield a a plentiful supply of water.

Now, I am satisfied that the last person has no intention to deceive, and is as much mystified as any one. If there is any virtue then in the *fork*, (which I can hardly credit), what are the explanations?

A. D. A.

ATHOL, Dec, 2nd, 1867.

ANS.—We are not prepared to give a decided opinion on the above subject. The alleged explanation of the "divining rod" by those who use and have faith in it, is on the principles of electricity. A full discussion of this subject, *pro* and *con.*, appeared in the CANADA FARMER of Sept. 15, 1864 (Vol. I, p. 266), to which we beg to refer our correspondent.

Township Societies.

To the Editor of THE CANADA FARMER:

SIR,—In looking at the proceedings of the late Agricultural Convention, and likewise your remarks on the subject of centralization of Agricultural Societies, as well as hints thrown out from other quarters, I observe there is a tendency to do away with Township Societies, or so to lessen their influence as to make the County Societies the point of attraction. Having been connected with one or both societies for about twenty-five years, I beg to state the result of my experience on the above subject. First, Township Societies (generally) have a larger show and more competitors than the County Societies. Secondly, the Townships will each far exceed the County Societies in number of members. I have been in the habit of soliciting names for the County and Township Societies, and always found that I could get five for the Township more easily than one for the County Society; and if the funds were greater for the Township Societies they would be sustained much better. Thirdly, County Societies are sustained by a few leading agriculturists, and the large mass of farmers stand aloof with the idea that the funds are secured by the few. Fourthly, persons living at some distance from a County town, and not having much to exhibit, would freely exhibit in the Township in which they reside, but will not travel to the County exhibitions. The parties referred to as not falling in with County Societies are far more numerous (and influential too) than is conceived of by any person except residents.

The primary object of the Government grant is to diffuse knowledge, create circulation, and benefit the people generally, and not to bolster up a few to the neglect of the many. If the public funds are to be appropriated for the community at large, I would say take the best steps to secure the much—desired end. Let such information be elicited from Township as well as from County Societies as will enable our Legislators to make such a law as will reach the community at large.

From the above and other facts, I am of opinion that County Societies ought to merge altogether into the Township Societies; and not *vice versa;* then the great and small would meet together on fair and equal terms, and the benefit of the Societies would be more widely diffused.

JOHN BARNARD.

Oakwood, December 11th, 1867.

NUT-TREES MATURING.—Mr. C. E. Whitcombe, of Paris, writes:—"Would you or one of your numerous correspondents kindly reply to the following queries:—How long will it take a Hickory tree, English Walnut and Canadian Chestnut, respectively, when transplanted as saplings, to arrive at their full bearing?"

ANS.—Through the courtesy of Mr. George Leslie, of the Toronto nurseries, we are able to give the opinion of a practical and experienced gardener in reference to the above enquiry. In Mr. Leslie's opinion, it would require eight or ten years for the trees in question to bear fully. They are all hard trees to transplant successfully, and the English Walnut is quite tender in the vicinity of Toronto.

SETTLERS' ASSOCIATION, MUSKOKA.—A communication from this association only just received, and too late for insertion in the present issue, will be published in our next.

The New Volume.

We commence with this number a New Volume, and beg to solicit the earnest co-operation of officers of Agricultural Societies, and the friends of Agriculture generally, in increasing the circulation of "The Farmer." We believe the Paper is doing a good work among the agricultural community; but to obtain the full benefit of its publication, its circulation must be extended until every farmer in the country is numbered among its readers. Terms of subscription will be found elsewhere.

Bound Volumes.

The present volume of "THE CANADA FARMER" is now ready, consisting of 24 numbers, and comprising 350 pages of reading matter in a bound form. The binding will be charged 30 cents in addition to the subscription price, making $1 30 in all for the volume. Parties desirous of having their Nos. for the past year bound, will please send them to us prepaid, securely packed, with their name and address, together with 30 cents in stamps or otherwise, and we will return them bound. Vols. I., II. and III., containing the numbers for the years 1864, 1865 and 1866, as well as the volume just completed, may also be had in bound form at $1 30 per volume.

The Canada Farmer.

TORONTO, CANADA, JANUARY 1, 1868.

Volume Five.

We have much pleasure in again wishing our numerous readers "A HAPPY NEW YEAR" as we address ourselves to the labours and responsibilities connected with another volume of this journal. Amid the many engagements of a busy life, time flies fast, and it seems but as yesterday since the first editorial was indited for the CANADA FARMER. Yet four years have elapsed,—eventful, changeful years,—concerning which, if this were a journal of news, it would be easy to pen a page or two of condensed reminiscences about things in general. We may not, however, invade the province of the newspaper, but must keep within the limits of our own peculiar domain.

That in agricultural affairs these have been years of improvement and progress, is, we think, undeniable. Without going into particulars, or adducing evidence, this may safely be assumed as a fixed and admitted fact. There is an instinctive consciousness of growth and advancement, which is especially characteristic of a young country, and along with this, we are able to point with pride and pleasure to many substantial marks of progress. We might, doubtless, have made more rapid improvement than we have done; yet in the development and application of our resources, our style of farming, the education, home comfort, culture, and wealth of our people, great things have been accomplished. The Canadian Farmer is "coming up." Year by year his occupation commands greater respect, and his importance to the commonwealth is more clearly perceived. This will continue to be the case as our agricultural population rises in the scale of intelligence, and secures for itself a more thorough educational fitness for its duties. This upward tendency of things is replete with encouragement to those concerned in the conduct of agricultural journals, for as the science of farming becomes better understood, such journals cannot fail to be more widely taken and more highly appreciated. It is very pleasant to feel not only that there is an intrinsic interest about one's vocation, but that it has the stamp of usefulness upon it. It has become almost a proverb, that he who succeeds in making two blades of grass grow where only one grew before, is a benefactor to mankind. It is for this and similar results of benefaction and blessing that we are at work: to render the wilderness fruitful; the solitary place bright, beautiful and vocal with life; to bring abundance to the lap of our country, and make its homes abodes of peace and plenty. In the prosecution of these beneficent objects there are no clashing interests, and no sources of discord or alienation, as is the case in the advocacy, even from the purest and most patriotic motives, of political opinions. We occupy a region high above the level of the storms that gather in the political sky, and have the satisfaction of knowing that the information we impart, the principles we teach, and the practical directions we give, are acceptable and useful to people of all nationalities, politics and creeds. The CANADA FARMER knows no distinctions of race, party, or sects, and aims to render itself an agreeable, useful, welcome visitor to every household in which it can gain admittance.

Our career thus far has been successful beyond our most sanguine hopes. The circulation of this paper has been larger the past year than during any previous year, and we see no reason why it should not continue to increase. Most flattering expressions of interest and satisfaction are constantly reaching us. Our correspondence enlarges and improves. We have a most efficient editorial staff. The country is prosperous. We on our part shall spare no pains to make this a first-class agricultural journal. Our agents will use every endeavour to push its circulation, and we are confident that our readers generally will do what they can to increase our list of subscribers. We again invite our friends all over the country to lend us their valuable co-operation, especially by sending items of agricultural intelligence, results of personal experience in farming, and free expressions of opinion on all matters of rural interest. As heretofore stated, we are not particular about the garb in which these things come to hand. Of course it is very pleasant for an editor to get a nicely written and well composed piece of copy all ready for the printer, but we do not grudge the labour of putting anything valuable into proper shape. Our friends may therefore write freely. Many practical men, through lack of early advantages, do not wield the pen of the ready writer, and, on this account, shrink from putting their thoughts on paper. We beg such to dismiss their modest hesitation, and do their best. The department of "Correspondence" has been thus far one of the most prominent and useful features of this journal, and we are anxious that in this particular, as in all others, the CANADA FARMER should not only hold its own, but steadily improve. It will do so, if our patrons not only read our pages, but write for them.

MONTREAL VETERINARY SCHOOL.—The Montreal Veterinary School has opened its winter session under favorable auspices. An admirable inaugural lecture was delivered by Mr. McEachren, under whose direction the School is conducted. The subject of the lecture was "Endemic Diseases in Horses." Had space permitted, we should have been glad to have given some extracts from a condensed report which we have received. Mr. McEachren seems well qualified for his important post, and we very cordially wish success to this most useful institution.

Our Editorial Corps.

THOUGH this journal continues to be under the responsible management of the same Editor-in-chief as at the first, some changes have taken place from time to time in the *personnel* of his staff of assistants, and of these it may be well to inform our readers, that they may know to whom they are indebted for not a little of the interest which attaches to the CANADA FARMER. Much to our regret, Mr. D. W. Beadle, of St. Catharines, who so ably conducted our Horticultural department at the first, ceased to be connected with this paper at the close of Vol. I. The department thus vacated has been managed since by the Editor-in-chief and the Office Editor. This last-named position is filled by Mr. John E. Ellis, of this city. Prof. Buckland still presides over our Stock department, and during the past year has enriched our Correspondence department by many valuable contributions. Prof. A. Smith continues to conduct the Veterinary department, and Mr. James Smith the Architectural department. The Rev. C. J. S. Bethune is Entomological Editor, and it is no disparagement to others to say that this is a specially valuable feature of this journal. Mr. J. H. Thomas, of Brooklin, is a regular contributor to "The Apiary," and solves all practical questions that come up in the course of the correspondence we receive in relation to bee-keeping. Several parties lend us occasional aid, and it is only right to say that among these our chief indebtedness is to Mr. J. E. Cull, of the Canada Company, a gentleman whose tastes are, we had almost said, intensely agricultural, and whose ready and practical knowledge, as to farm matters, render him a most efficient and valuable contributor. This enumeration of our *collaborateurs* will suffice to convince our readers of the truth of a statement elsewhere made in this issue, that "we have a most efficient Editorial staff."

Farmers' Clubs.

WE have had the pleasure, on rare occasions, of recording the origin and progress of Farmers' Clubs in some few sections of the country, which were in advance of less enterprising neighbourhoods, or distinguished by the presence of some active and leading spirit who influenced the lethargeic characters around him, and stirred them up from the apathy that is wont to settle down on the inhabitants of rural districts. Certain it is, these useful institutions are far from common among us, and as we believe they are calculated to do a great amount of good when judiciously managed, we would strongly advocate their formation as an adjunct to Agricultural Societies, and as affording the means of mental improvement and social intercourse in a way which Agricultural Societies alone cannot effect.

During the spring, summer and harvest months, the farmers' time and energies are taxed to their utmost extent to press through the necessary work in the short season which this climate allows: but winter is a time of comparative leisure in the country—of comparative leisure only—for on every well ordered farm there is plenty of work to fill up the brief days of this season of the year: but the evenings are long, and afford a most welcome leisure for relaxation from the strain of nerve and muscle, for social enjoyment, and for mental culture. It is then that the attractions of the fire-side and the domestic circle may be most fitly indulged and turned to best account. But even where these are all that they should be, we need to go out of the charmed circle, and come in contact with our fellows in social intercourse of a less exclusive character. Amongst the agricultural population, farmers' clubs afford a most appropriate means of securing this desirable end. When they are rightly conducted, the benefits they might confer can hardly be over-estimated. They furnish a ready and most pleasing opportunity for gaining and imparting information on matters of common concern, of comparing experience, and of cultivating kindly feelings of fellowship and sympathy. By their organization a rural neighbourhood may be provided at a trifling expense with a valuable library of books for circulation, pleasant meetings and discussions are established, and in many other ways they conduce to the mutual improvement and social enjoyment of the comparatively isolated community of agricultural districts.

The details of their management must be regulated in great measure by the circumstances of the neighbourhood. We would suggest that the meetings and discussions which usually form a part of the proceedings of these Associations should be as little formal in their character as possible, and we know of no better example to hold up for imitation than the Little Falls Farmers' Club, of whose meetings most interesting accounts are given from time to time in the *Utica Weekly Herald*, whose reports we have occasionally condensed for the benefit of the readers of the CANADA FARMER. While the discussions themselves should be of a free and conversational character, care should be taken that the interest of the evening is not left to accident, but should be provided for by appointing beforehand some subject, and one or more individuals to lead the debate, either by reading a paper, or in any other way that may seem most appropriate. Subjects for discussion can never be wanting. All the occupations and interests of rural life are fit and inexhaustible topics for such meetings.

There is one other suggestion we would make, and which has been acted on with very satisfactory results in several instances, namely, that some of the meetings at least should be of a more public general nature, and should include the farmers' wives and daughters amongst the audience. This would at once enlarge the sphere of their operations, and render them more attractive and refined. One word in conclusion. Let the meetings be held in the school-house, or in rotation at your own dwellings, but never, if it can possibly be avoided, in taverns. We hear of several of these Associations being projected in various localities. We heartily wish them success, and trust their number will greatly increase. We believe them to be most important means of disseminating information, cultivating the mental powers, and elevating the farmers' calling to its true position of dignity and influence.

Agricultural Education.

THE subject of popular education in general is one of the questions of the day in Britain, and as one branch of this great subject, the education of farm laborers, and of young men who intend to pursue agriculture as a profession, is being largely discussed. At the first monthly meeting of the Kingscote Agricultural Association for the present season, a lecture was delivered on this topic by Col. Kingscote, C. B., M.P., which was replete with common sense views, and was especially good in reference to the training of young men for agriculture as their future occupation. A plain general education until the age of twelve or fourteen, is advocated as the basis of the work. "Then," said the lecturer, "comes the ticklish time to know what to do with boys." They need to have their muscles exercised and developed. It is time for them to learn to hold the plough, and to perform all the manual operations of the farm. They should also be taught accounts and book-keeping. What is to be done at this critical age? The agricultural colleges are not in all respects the thing. Especially do they fail in teaching the practical part of the business. Theory is well, but the practice needs to go with it. A sort of apprenticeship to farmers who have been themselves thoroughly educated is good; much may be learned at a college or school like that at Cirencester; but what is wanted is a course of training by which work with the hand shall be taught along with work with the head. The lecturer was of opinion that a farm, managed by a well educated practical man, the whole work of which should be done by the school of pupils in attendance, their time being divided between study and labor, would be the best solution of what should be done with youths at the "ticklish age." Such an establishment might have its professors and teachers to give lectures and instruction during certain hours, and might also employ a portion or all of the evenings of the week in studies of one sort or another. Difficulties would of course creep up in connection with this plan, but it presents many obvious advantages.

We have often thought that a scheme of this kind would be eminently suited to a new country like ours. We believe it might, by judicious management, be made well-nigh self-supporting. The chief obstacle in its way is a certain prejudice which exists against manual labor institutions, and that resolves itself mainly into the notion young men almost invariably get into their heads, that to become scholarly they must abjure vulgar toil, and be genteel in attire and habit. That work is low, and incompatible with respectability, dignity, and scholarship, is too much the prevailing impression. Farming will never occupy its true position among human avocations until this false view of things is done away, and a wisely planned scheme of manual labor education, thoroughly carried out, would be as fatal to it as anything within the compass of practicability. We should much like to see the experiment fairly tried in "this Canada of ours."

Literary Notices.

THE ILLUSTRLTED ANNUAL REGISTER OF RURAL AFFAIRS FOR 1868. We have received from the publishers, Messrs. Luther Tucker & Son, of Albany, N. Y., a copy of the above-named publication, now in the fourteenth year of its age. Like its predecessors, it is full of useful information on rural topics, illustrated by suitable engravings, and as we have before observed, we know not in what shape so much valuable matter can be had for thirty cents, American currency, without it be in the columns of the CANADA FARMER. The present number contains, next to a calendar of the months and of the farm operations appropriate to them, a valuable article on "Rotation of Crops." Then comes a chapter on the "Culture of Small Fruits on the Hudson," which cannot fail to be highly suggestive to all fruit growers, and especially those who raise the smaller fruits for market purposes. Next we have "Shrubs and Shrubberies," occupying some 22 pages; then "Contrivances in Rural Economy," some of which we intend to give a future issue; then, "Iron Furniture for Farms;" "Stone and Gravel Roads;" "Hay Barracks;" "Plan of a Corn House;" "Order and System;" "Remedies for Household Pests;" "Garden Insects," by Dr. Fitch, the celebrated Entomologist; [N.B. This one chapter is worth the price of the book twice over.] "Plans of Grounds;" "Rain Gauge;" "Cutting Fodder;" "Farm Notes;" together with, as the auctioneers say, "a variety of smaller articles too numerous to mention."

Since the above was put in type we have received copies of the above publication from Mr. F. E. Grafton, Bookseller, of Montreal, and Mr. Day, Bookseller, of Guelph. The former advertises it for sale at 30 cents, and the latter at 25 cents.

THE LITTLE CORPORAL. This juvenile monthly continues to maintain a high character. The issue for December is a capital number. It contains "On the Hearth Rug;" "The Great Panjandrum Himself;" "Jennie's Memory String;" a new "Rhyme of Little Red Riding Hood;" the conclusion of "Camp Bruce;" besides a number of sparkling poems, among which is a perfect gem, by the Associate Editor, Mrs. Emily Huntington Miller, entitled "The Baby's Stocking;" music by Geo. F. Root, a letter from Theodore Tilton, and an editorial describing the beautiful process by which chromos are made. A new volume of *The Little Corporal* begins with the January number. Terms, $1 a year. Address Alfred L. Sewell, Publisher of *The Little Corporal*, Chicago, Ill.

THE AMERICAN STOCK JOURNAL. An advertisement respecting this periodical, will be found elsewhere in our present issue. It is an excellent publication, comes out monthly, and cannot fail to interest and prove instructive to stock breeders.

Agricultural Intelligence.

American Dairymen's Association.

We have much pleasure in publishing the following circular, sent to us by the Secretary of the American Dairymen's Association, and we heartily commend the object to the attention of Canadian dairymen, not a few of whom, we hope, may find it convenient to attend the Convention.—

The third annual meeting of the American Dairymen's Association will be held in the City of Utica, on Wednesday and Thursday, January 8th and 9th, 1868.

The Annual Address will be delivered by Prof. Wm. H. Brewer, of Sheffield Scientific School, Yale College, New Haven, Conn., on *Wednesday Evening, January 8th*. Subject. "Cattle Breeding in its relations to Dairy Farming."

Below are noted some of the principal subjects that will be presented for the consideration of the Convention.

Ample opportunity will be afforded to members to introduce such other pertinent topics as they may desire. It is requested of members that, so far as is possible, their remarks upon the following subjects, and such others as they choose to present, *be written out in full (on one side of the sheet only), so that they may be printed complete in the next Annual Report of the Association.*

1 Purity of flavor in cheese—how secured—how lost? It is hoped that speakers upon this subject will bring to the notice of the Convention, not theories alone but facts, and the results of careful and reliable experiments. The universal cry of buyers and shippers, at times, this season, has been that clean-flavoured cheese has been the exception even in the best of our factories.

2. Pressing cheese two or more days—what effect has this upon the texture and quality of cheese? If speakers upon this matter will exhibit to the Convention the results of two, three, or four days' pressure, as compared with twenty hours, (as is the case in most factories), it will not only be introducing a novelty into our meetings, but it must also result in much benefit. Of course the cheese may be small, but the curd thus variously treated should be from the same vat.

3. Curd-mills—is their use beneficial to the cheese, and is their introduction into general use advisable? The remarks succeeding No. 2, apply equally forcibly to this. It is hoped that more than one speaker will come prepared to prove his opinions respecting curd-mills, by an exhibition of their actual results.

4. Salt—are there impurities or ingredients in the Onondaga salt that render its use injurious to the quality and flavour of cheese and butter?

5. Butter-making from whey—can it be profitably done at cheese factories?

6. Dairying in America—has it already been overdone? If not, is it likely to lead to a production exceeding the demand?

7. Is it not desirable that the Association take measures to inaugurate some practical and efficient plan by which members may be put in possession of all necessary information from all dairy districts, respecting the quantity of cheese made, with sales and quality of the product, &c., at frequent intervals during the season of cheese-making?

A number of gentlemen, representing different sections of the dairy regions in this and other States, have already signified their intention of taking part in the discussion of the above questions. Many others have been invited to do so, and are expected to accept.

Factory reports should be handed to the Secretary at the Convention, or sent to him very soon after. It is hoped that many of them will be received, as they form a valuable part of our annual reports. It is suggested that, in making these reports, the topics above named be touched upon by cheese-makers.

GEORGE WILLIAMS, President.
GARDNER B. WEEKS, Secretary,
Verona, Oneida Co., N. Y., Dec. 10, 1867.

Cattle from Canada.

The Secretary of the American Treasury has addressed a circular to the collector of customs on the Northern, Northeastern and Northwestern frontiers, as follows:

It being represented to this department that a difference in practice exists at some of the frontier ports bordering on Canada, in relation to the assessment and collection of or exemption from duty, on the importation of cattle and other live animals from Canada, which had previously been exported from the United States thereto, for the purpose of grazing or fattening, with the intention of returning the same to the United States, the following instructions are hereby issued on the subject, and will be carefully carried out by the collector:—Such cattle or other animals, on being brought back to the United States, can only be admitted to entry free of duty when they are returned in the same condition as when exported, and when the proofs of domestic origin, of exportation from a port of the United States, and the other proofs required for the free entry of goods, wares, and merchandise of domestic origin and production, are duly produced to the collector at the port of importation. The collector of customs, therefore, on the exportation of cattle, or other animals, should take and file among the records of the custom house a careful description of the same, so that they can be readily identified in case of their being returned to the United States. When it is found, on the importation of such cattle, that their condition is changed by fattening, or other causes, duty will be assessed and collected thereon in the manner prescribed for original importations.

☞ A wool exhibition is to be opened in New York at no distant day.

☞ The ramie plant, which is attracting considerable attention in New Orleans, is a substitute for cotton. It is indigenous to Mexico, gives a fibre finer and whiter than grass cloth, is perennial, and yields abundantly four crops in a season.

SALE OF SHORT-HORNS AT HARRISTOWN, U. S.—An extensive sale of Shorthorns, of which notice appeared in a previous number of the CANADA FARMER, took place on Nov. 20th, at Harristown, in Illinois. The herd had belonged to Mr. Hill, and were sold in consequence of their late owner's death. The number of cattle sold was fifty-two, and the total sum realized was $13,539. One bull alone, the 15th Duke of Airdrie, was sold for $1,260. Among the company present were several Canadian Stock breeders, and among them Messrs. Beattie, Miller, and Snell. Mr. Miller was the purchaser of a four-year old cow, Lorena, which was bought for the sum of $450.

DERBY AGRICULTURAL SOCIETY ROOT COMPETITION.—The Derby Agricultural Society, in connection with its Fall Exhibition, offered prizes for the best acre of turnips. The examination of fields entered for competition was concluded in due season, when the judges made the following report: "We, the undersigned, having examined the Turnips entered for competition by the following parties, viz: John Frost, Samuel Horton, John McDermid, James Fleming, Robert Linn, James R. Todd, Edward Tate, James Webster, beg leave to report that we found that John Frost's turned out at about the rate of 1013 bushels to the acre; Samuel Horton's turned out at about the rate of 841 bushels to the acre; John McDermid's turned out at about the rate of 574 bushels to the acre; James Fleming's at the rate of about 635 bushels to the acre; Robert Linn's at the rate of about 968 bushels to the acre; James R. Todd's at the rate of about 811 bushels to the acre; Edward Tate's at the rate of about 1048 bushels to the acre; James Webster's at the rate of about 932 bushels to the acre. We have decided that Edward Tate is entitled to the first prize, John Frost to the second prize, and Robert Linn to the third prize. GIDEON HARKNESS, JOHN COOPER.—Ex.

Poultry Yard.

Poultry Exhibitions.

POULTRY exhibitions, it appears, are coming into fashion on this continent. Our neighbors in New York have recently held one in connection with the newly formed Poultry Association, and in other places the example is being followed. We hail the sign with much satisfaction, for we hold that these societies and exhibitions are of no inconsiderable value. No other proof of their utility need be given, than the fact of the great improvement in market as well as fancy poultry in England since 1848; and although amusement and fancy may be in the first instance the great incentives, the end attained is general usefulness, and in many cases profit. Markets are better supplied and more birds are kept in farms and elsewhere, furnishing an abundance of wholesome and cheap food, to say nothing of the supply of feathers. It is at least a fancy that beats tulips, which only gratify the sight.

We have heard rumours that other societies besides the "Ontario" are to be formed, if not already in existence, and we can only hope that they will take a hint from past experience, and conduct their exhibitions in as systematic a manner.

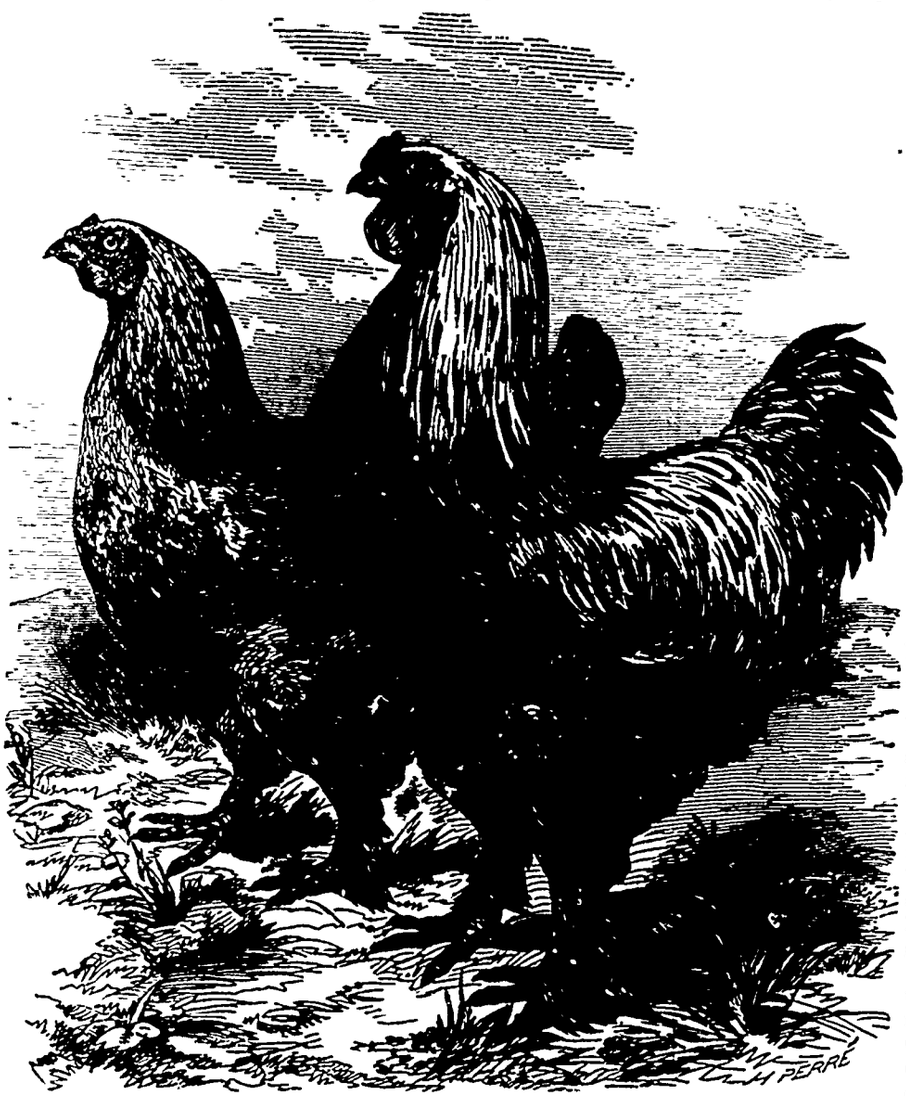
The first thing necessary in starting an exhibition is funds. Expenses of every description should be met by an equivalent in hand before the doors are opened to the public; to trust to make up a deficiency by visitors is to trust to a broken reed, a wet day, some other attraction—in fact a variety of circumstances may happen to draw off attendance. The next thing which is absolutely necessary, is that good uniform sized coops should be provided. Letting exhibitors find their own coops makes the show irregular, untidy, and deteriorates much from the general appearance.

The birds should be consigned to one person, the secretary, who, assisted by a staff, sees that they are properly cared for and returned. This is a most important point, or it enables those who cannot come with their specimens to send them with confidence. At the Provincial Exhibition we find many exhibitors were kept from exhibiting because they could not attend personally, and had nobody to whom they could consign their charge. If exhibitors would pack their birds in round baskets lined with calico or linen, they would find it more economical in express charges than large boxes. When the birds have been received at the show-building, the owners should be considered as not having any more control over them until they are returned; they should not be admitted into the exhibition room until the time for the opening as published in the Regulations arrives. The Ontario Society carried out this rule as well as they were able, but in another exhibition we hope to to see all but those actually at work, and officially engaged, kept from prematurely entering the hall. Of course we need not point out that the specimens should be in well-defined classes, each class together, and not, as at Hamilton and New York, mixed anyhow.

Last, but not least, get competent judges. Our opinion is that societies cannot do better than follow the "Standard of Excellence of the British Poultry Club," of which we have from time to time, as space permitted, published extracts in this journal. Give the Judges a whole day before the public are admitted. If the show is large, it is not too much. Recollect, it is a difficult and thankless office; and allow no private marks or names on the pens until after the awards. The awards should be handed to the secretary, who directs the proper notices to be attached; the judges should not be required to affix the cards, for they take time and interfere with their duties. We may add, be not in haste to condemn judicial decisions. They often have better foundation than is at first thought, especially by disappointed exhibitors.

Brahma Pootra Fowls.

IN our report of the recent poultry show, it was stated that among the importations were a pair of dark Brahma Pootra fowls, exhibited by Mrs. Varley of this city. These birds were bred by Mr. Cooper, a noted and successful English breeder. They did not arrive in Toronto in time to compete for a premium, and were on exhibition only during the second day of the show, having reached town some time during the previous day. The accompanying illustration gives a fair representation of these fine birds, which deservedly elicited very great attention and admiration.



In an early number of the present volume of the CANADA FARMER we published a pretty full account by R. A. Wood, Esq., of the characteristics and merits of this useful breed; it is unnecessary therefore to give any lengthened notice here. They are great favorites with most persons who raise them. Their large size renders them profitable as table fowls; the hens are good layers and excellent mothers; the breed is hardy and easily kept, consuming, it is said, comparatively little food, and foraging well for themselves when they have the opportunity. Some persons object to them as not being a pure breed; but, as is well observed in Tegetmeier's Poultry Book, "whether Brahmas form a distinct variety, or whether they are a made kind, commenced with a cross and established by careful breeding, is a question of little importance The accusation has been brought against them that no one for a certainty knows their origin; may we not say the same of all our best varieties of fowls, with only the difference of going a few years further back? Whatever may have been their origin, they are now distinct and true to their characteristics."

Winter Quarters for Poultry.

To the Editor of THE CANADA FARMER.

SIR,—On page 70 of your paper of 1st March last, appeared an address from Col. Hassard, on "Poultry and their general management," in which, as a true lover of "Mrs. Biddy," I took much interest.

Still, the now commencing cold weather brings to my recollection that there was one important point therein on which my experience has differed from Col. Hassard's—I allude to his advice to select a *barn*, or such like cold building for their winter abode. Now, though I am inclined to agree with the Colonel when he says that for poultry stove heat is an abomination," still I cannot help thinking that frost is ditto. Theory would seem to indicate that natives of the torrid zone would not be comfortable on our winter's nights, or days either, without some more heat than that afforded by their own natural coverings; and my experience has certainly been, that from hens kept under such conditions few eggs can be had, at least until spring. Now, fresh eggs in winter are hunted after at *three times* the price they fetch in summer, and the price of early chickens bears almost a similar proportion to that of the late ones, besides which, I have never seen the late birds develop into nearly such good breeding stock as the early broods.

A *stable*, therefore, and not a barn, is the place I would advise a farmer to keep his poultry in; not that I would advocate allowing them to run loose among the horses or cattle, but I would say: Having decided on the space necessary for the cattle, add to it one or more compartments of suitable size for the number and varieties of the fowls kept, divide these, by open lath-work only, from the rest of the stable, so as to allow free circulation of the warmth from the cattle through them; and see to a provision of fresh air by a ventilator through the roof, to be closed by a slide only on very cold nights. The outside walls of the whole being made double, of boards, with sawdust filled in between, will exclude all frost, even in the most severe weather. Housed in this way, my hens lay all the year round, which they never did before, and the health of the poultry could not be better. I also find the slightly moist and warm air from the cattle to be exactly fitted for the hatching and raising of chickens. Last February I raised a flock of nine, not losing one. I trust I need scarcely add that extreme cleanliness is an absolute necessity; there should be no more smell in the poultry apartment than in the cleanest horse stable. I have found sand, sawdust, and ashes all excellent for covering the floor with, to be put on about an inch deep, raked over each morning, and renewed about once in ten days. As to food, I think a frequent error is committed in relying too much on dry grain, particularly oats. I have always found that by far the best results are obtained when the hens have at least one meal a day of hot mashed potatoes, mixed with about an equal portion of indian or oat meal; if moistened with scalded skim milk so much the better.

Perhaps the foregoing may occupy more valuable space in your columns than you can readily afford. It may, however, be a recommendation that it is founded entirely on *practice in our own climate;* and although I am fully sensible that it is a serious affair to venture to question so great an authority on these matters as the gallant Colonel, yet I may perchance not do harm should I elicit further discussion on what, with us at least, must lie at the root of all *profitable* poultry keeping, to wit, their location in proper winter quarters.

GALLUS.

Having submitted the above communication to Col. Hassard, we have received the following remarks in reply.

To the Editor of THE CANADA FARMER:

SIR,—I am glad to find that at last the design of the Ontario Poultry Association, and one at least of the objects of your valuable journal, are being realized in such letters as that of "Gallus." Discussion on practical poultry matters will tend to profitable issues. "Gallus," I see, hails from Quebec, where I spent three winters. Perhaps he is, under an assumed name, a personal friend, but at any rate he is 'game,' and I am not going to fight him, so that we shall agree on the main question.

My views were intended to apply more to the climate of Upper Canada than Quebec, which I merely quoted as an extreme case, chiefly with reference to frozen combs. I have seen at Quebec the arrangements described by "Gallus," which are of great utility, and if carried out fully, in regard to cleanliness, as he states, will no doubt prove successful. I should prefer myself the same house, with access to a barn or shed, where the fowls would have a dry run. Even in Quebec, where the winters are long and severe, and very trying on poultry, fowls may generally be at large in a suitable place, and then a barn, which would always be dry, even on moist days, saves feet from frost and is useful.

I never was able to keep out frost in a stable made and lined as described by "Gallus," at Quebec, with two horses and three cows in it; but there is no doubt that the warmth afforded to the fowls would assist laying, and if they received the attention "Gallus" recommends, must succeed. I should, however, be afraid of frozen combs if the frost got in, as the moisture in the stable would favour the occurrence. I always prefer open air work for

chickens, letting a hen in cold weather only have four; but both in Ontario and Quebec, there are days when they require shelter in stables, sheds or elsewhere. On behalf of the Poultry Association, allow me to add that we ought to be greatly obliged to "Gallus" for his letter, and any more information he can give, we shall only be too happy to have; and if he will send us some birds at the spring show, we will take all possible care of them.

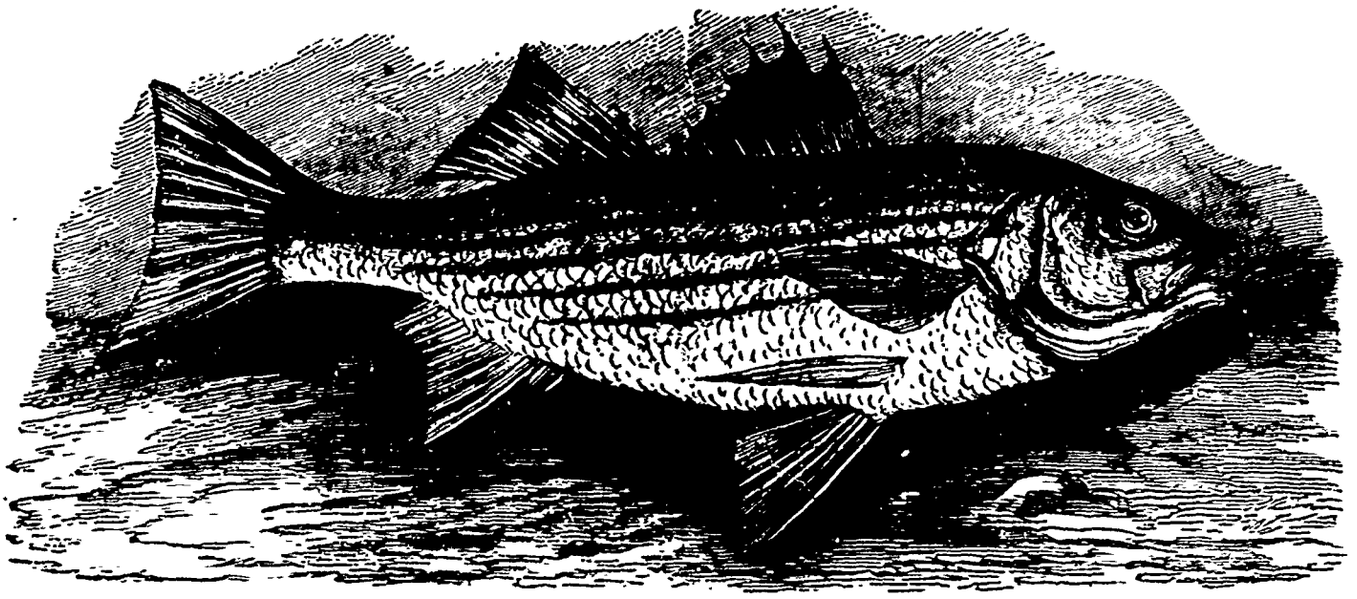
F. C. HASSARD.

CANADIAN BIRDS AT THE NEW YORK POULTRY SHOW.—A pair of magnificent Lemon Cochins, exhibited by Lieut.-Col. Hassard, obtained the first prize in their class at the recent exhibition of the New York Poultry Association. The splendid breed which the Colonel has introduced will, no doubt, leave their mark both in Canada and the United States.

SALE OF LADY HOLMESDALE'S DORKINGS.—The most renowned stock of Dorkings in England, that of Lady Holmesdale, have been sold by auction at Linton Park, near Maidstone. There were about 114 lots of Dorkings, 30 lots of Spanish, and a few Brahmas, making up a total of 170 pens. The amount realised by the 114 lots of Dorkings was over £400, and the gross receipts of the sale were within a few shillings of £500.

The latter order is represented by the Salmon and Trout. The family of Perches is included among the Ctenoids. This family is characterised by an oblong, more or less compressed body, covered by harsh, rough scales, and by the opercula or gill covers, and the preopercula, or bones immediately in front of these, being spiny. The family includes a great number of species of all sorts and sizes, from the little sun-fish so dear to school-boys and so persecuted by them, to the magnificent fish which is represented in the accompanying engraving. Some species are marine, some are fresh-water, and some frequent both, being, like the salmon, of a migratory disposition. Amongst them we find some very odd fish. The *Perca Scandens*, for instance, is said to vary the monotony of his subaqueous life by indulging in the recreation of climbing trees. It appears to be able, by means of the alternate use of the spines of its pectoral fins, to ascend rocks and plants growing from water. Fish which possess this faculty of leaving their native element are usually supplied with some apparatus for keeping their gills moist, and thus prevent them from collapsing and drying up—a catastrophe which happens with most fish when they are removed from the water, and speedily causes their death. The power of living for some time in the air is possessed by the Anabas and some other fishes. These singular creatures, the rivers in the spring, for the purpose of depositing its spawn. It is a large, bold, and active fish, sometimes weighing, it is said, seventy or eighty pounds, and biting eagerly both at bait and fly. In September and October, they run along the coast in large shoals, entering the inlets, and being taken in great numbers between the outer bars and the beach. In winter, when the weather becomes cold and stormy, they again enter the estuaries of rivers, and imbed themselves in the brackish bays and lagoons, which possess the advantage of being calm and undisturbed by the tempests which vex the open sea.

In colour, the Striped Bass is bluish-brown above, silvery on the sides and beneath. Along each side are from seven to nine equidistant, dark, parallel stripes, the upper series terminating at the base of the caudal, and the lower above the anal fin. These lines are occasionally indistinct, sometimes interrupted, and more rarely present the appearance of a continuous stripe, alternating with a row of abbreviated lines or dots. This seems to be the variety which Dr. Richardson has designated the Bar-Fish of the St. Lawrence. The body is cylindrical and tapering; head and body covered with large, adhesive scales; lateral line obvious, running through the fourth stripe, and nearly straight; head bluntly pointed; eyes large; nostrils double; gill openings large; lower jaw the longer: teeth numerous on the maxil-



Canadian Natural History.

The Striped Sea-Bass.

(*Labrax lineatus.*)

THE class of fishes was divided by Cuvier into two sub-classes—those possessing a bony skeleton and those in which the internal framework is cartilaginous. The former division includes most of the ordinary fishes of our lakes and rivers. Sharks and sturgeons belong to the latter. He subdivided the bony fishes into two great orders—those with bony spines in their fins—*acanthopterygii*—and those whose fin-rays are soft—*malacopterygii*. At the head of the first of these orders he placed the family of Perches. Agassiz, however, has more recently divided fishes into four great orders, founding his characters on the structure of the scales. These orders are as follows:—

Placoids, including sharks and many fossil fish, in which the scales are represented by masses of enamel; Ganoids, such as sturgeons, with angular, horny scales; Ctenoids, whose scales consist of thin, overlapping laminæ, toothed on their free hinder edges so as to cause a sensation of roughness when the hand is passed over them; and lastly, Cycloids, with thin, rounded, overlapping scales with smooth margins

when the pond in which they have been residing becomes too dry for their comfort, are in the habit of quietly walking off in search of another, like an American citizen on the first of May. M. Renan says that he knew a species of Lophius, or Fishing Frog, which walked about the house like a dog. In all these cases, however, the creatures are awkward in their movements, and conduct themselves very much after the manner of a fish out of water.

Most Perches are excellent for the table, and afford capital sport to the angler. What country boy is there who does not recollect many a sunny Saturday afternoon, when, equipped with rod and line, and provided with an ample stock of worms delicate enough to tempt the appetite of the most fastidious inhabitant of the stream, he sallied forth in search of the pretty little sun-fish, which he would hardly recognize under its more scientific but less expressive name of *Pomotis vulgaris*?

Our illustration, which, as well as the substance of the following description, is taken from the capital work of "Frank Forester," on "Fish and Fishing," represents one of the finest species of the family, both as regards its size, the flavour of its flesh, and the sport which it affords to the angler. The Striped Sea Bass is found on the coasts and in the rivers of the Middle and New England States, and is in all probability specifically identical with the Bar-Fish of the St. Lawrence. It inhabits the salt water, but ascends

laries, palatine bone and tongue; operculum armed with two spines on its lower margin, the preoperculum finely dentated. The first dorsal fin consists of nine spinous rays, of which the first and the last are shortest. A simple ray occurs between this and the second dorsal, which consists of twelve branched rays. The pectoral fins have sixteen rays; the anal, three spinous and eleven soft; the caudal, which is broadly lunate in shape, has seventeen branded rays. The pupils are black, the irides silvery. Altogether this is one of the most beautiful, as well as the most excellent of American game fish, the flesh being very firm, white, and well flavoured.

ROBINS' EGGS.—A correspondent from Brighton, in addition to giving some particulars respecting the habits of certain birds, states that "On a beam under the verandah, a Robin (*Turdus migratorius*) has had a nest for several years. This year it laid seven eggs in the course of seven or eight days, and began setting as soon as the first egg was laid. It reared seven young ones. In the description of this bird in the CANADA FARMER last June, it is said that it only lays four eggs." Our correspondent will find, on referring to the description in question, that the usual number was set down as five. Our authority in the matter was the statement of Audubon and Wilson. We presume the case reported was exceptional.

Troubles in the Vinery.

To the Editor of THE CANADA FARMER:

SIR,—I have read the articles in your last numbers on insects injurious to the grape vine. In the catalogue I do not discover one which seems to be common here in the vinery, but not having examined it so carefully as I should, I fear I may fail in giving a satisfactory description. It makes its appearance on the under side of the leaf; in size and appearance it is something like a Mosquito, rather smaller, and of a whitish color. During the latter part of summer, when the leaves are disturbed, they seem to be all on the move—intent, I suppose, on no good purpose.

Would smoking the house as soon as the leaves are fairly out be advisable? If so, would tobacco or sulphur smoke be best? The latter would seem to be the quickest process, but I fancied once that I killed some Verbena plants with its use.

Early in July last, I left my vinery with a splendid show of fruit I thinned out about half of the bunches, and about half of the berries of the remainder. I was absent in England about three months, and on my return found the crop ruined. The grapes were nearly all split open, shrivelled and ripened unevenly. I noticed the leaves and stems of the vines considerably mildewed. Can you or any of your correspondents inform me if the damage mentioned was the natural effects of mildew, and what steps I should take to prevent a recurrence of the mishap?

A SUBSCRIBER.

NOTE BY ED. C. F.—(1.) The foregoing communication was received after our *third* article on "Insects Injurious to the Grape" was written, but previous to its publication. In it our correspondent will find an account of the insect that he complains of, viz.: The Grape-vine Tree-hopper; at least we infer from his brief description that it is the one in question. Our remarks have reference chiefly to vines grown in the open air, but of course they will apply to some extent to those under glass also; in the vinery, however, remedies are much more easily applied. To destroy the Tree-hopper we should recommend fumigating with tobacco in the following manner:—Take an old wire-basket, and put in it some red-hot coals, on these strew some common tobacco, cut up tolerably fine; then blow the coals with a bellows till the tobacco is well lighted; early in the morning, when the plants are covered with dew, will be found to be the best time for performing the operation. It should be repeated from time to time, till the insect is exterminated. To prevent a recurrence of the attack next year, in the spring the whole of the wood-work of the house should be painted with white-wash mixed with fine sulphur, and the canes treated, before putting up, with the following mixture:—3 oz. soft soap, 3 oz. flour of sulphur, 4lb of common tobacco, mixed in 2 quarts of boiling water; stir the whole together, then strain off the tobacco, and add stiff clay sufficient to give it the consistency of paint. This will destroy the larvæ or eggs of any insects lurking in the house.

2. The best and most effectual mode of preventing mildew is still a subject of doubt and discussion. The mildew itself is a minute parasitic fungus which attacks the leaves, stalks, fruit and canes of the vine, and often proves most injurious. During a brief visit to Cobourg this year, we were informed by several grape-growers that nearly all the fruit in their vineries was destroyed by this disease. Its attack is favored by any cause that lowers the action of the functions of the plant. So long as the vine is in full vigor, it escapes these attacks, but the moment it becomes weak it falls a prey to them. Any sudden change, therefore, from either heat to cold, or the reverse, extreme drought, or excessive moisture, defective drainage, a cold "sour" soil, &c., all render the vine weak; and nature has no mercy upon anything that is weak, but immediately lets loose its destroyers upon it. To ensure the vinery against this disease, it must in the first place have its drainage and borders properly prepared, then, the watering and ventilation must be carefully looked to; the temperature be kept as even as practicable; in a word, it must be thoroughly and scientifically attended to in every respect. During our correspondent's absence from home, his vinery was probably neglected, and hence his troubles.

To remove mildew, dusting with sulphur, mixed with a little lime, is the usual remedy. It can be applied with a bellows, by pouring the sulphur into the hole at the top, and closing it with a cork, and fitting the nozzle with a tin funnel covered with wire gauze at the end.

The splitting and shrivelling of the berries was probably a result of the same cause that produced the tendency to mildew, viz.: some reduction of the vital action of the plant. In our own vinery some of the bunches were affected early in the season in the same manner as those of our correspondent; we attributed the trouble to defective ventilation, early in the morning, when the sun shone upon the damp berries. By leaving some of the sashes open all night during the warm summer weather, we escaped all further trouble of this kind. On other plants some bunches never arrived at maturity, but dried up when quite small; this we attributed to the excessive drought of the past season, and also to leaving too many bunches on the plant. We were not troubled with mildew at all.

New Hardy Clematises.

THERE seems no limit to the improvements human skill may make in the simplest and commonest flowers, if it be only directed with intelligence and perseverance to accomplish a desired result. Some of the most superb ornaments of the garden have been produced from humble and unattractive originals. We are constantly hearing of novelties of one sort or another, such as flowers only known as single blooms being transformed into double ones, flowers of small size being wonderfully enlarged, and flowers of white, or some other uniform colour, being invested with diversified hues. A most interesting metamorphosis of a simple, familiar flower, is that of the clematis, found in its native haunts a little, insignificant bloom of climbing habit, but now changed into a truly magnificent flowering plant, capable of a variety of ornamental uses. A splendid species of clematis (*lanuginosa*) has long been in cultivation, but of so slow a habit of growth, both as to flowers and leaves, that it was almost an unused plant. Some English florists, the Messrs Jackman, of Woking, have been crossing and experimenting with this plant, until they have succeeded in raising some varieties of which *The Field* says: "we believe them to be the noblest hardy hybrids that have been introduced for many years." The blooms are of immense size, "nearly as large as tea-saucers;" they flower profusely, so much so that the leaves of the plant are quite obscured by the excess of bloom, and they are of various colours, rich purple, fine, soft blue, or mauve, and other lovely tints. They are perfectly hardy, needing no protection in the English climate, and as the clematis is indigenous to Canada, we presume they would stand our winters, and do well in this country. They make excellent bedding-out plants, by being pegged down, so that they are but little higher above the ground than the verbena. They are the noblest obtainable ornaments for low walls, trellises, summer-houses or old out-houses, to which, of course, they must be nailed or tied. They are superb, also, if allowed to run over large rock-work, needing, when thus used, no training, pruning, or attention of any sort. They will grow in all good soils, but do best in a light one, a sandy loam, or even a sandy soil. The best of this class of clematises, we learn from *The Field*, are, *C. Jackmanii* and *rubroviolacea*. These two kinds have already become abundant enough to be cheap. But several newer kinds have been produced, which command fancy prices, *e.g.*, *rubella*, *Prince of Wales*, *Lady Bovil*, *Thomas Moore*, and *Mrs. Bateman*. We hope some Canadian nurseryman or florist will introduce these desirable novelties into the Dominion of Canada.

Culture of Hyacinths in Glasses.

THE following directions for the successful culture of Hyacinths in glasses are given by Mr. Paul, an eminent Horticulturist:—

1. If you choose your own bulbs, look out for weight as well as size; be sure, also, that the base of the bulb is sound.

2. Use the single kinds only, because they are earlier, hardier, and generally preferable for glasses.

3. Set the bulb in the glass so that the lower end is almost, but not quite, in contact with the water.

4. Use rain or pond water.

5. Do not change the water, but keep a small lump of charcoal at the bottom of the glass.

6. Fill up the glasses with water, as the level sinks by the feeding of the roots and by evaporation.

7. When the bulb is placed, put the glass in a cool, dark cupboard, or in any place where light is excluded, there to remain for about six weeks, as the roots feed more freely in the dark.

8. When the roots are freely developed, and the flower-spike is pushing into life, (which will be in about six weeks), remove, by degrees, to full light and air.

9. The more light and air given from the time the flower shows color, the shorter will be the leaves and spike, and the brighter will be the colors of the flowers.

VINES BLEEDING.—A correspondent thus writes to the *Gardeners' Chronicle*:—"I have been in the habit of raising and growing vines out of doors, as well as under ground vineries, my garden being small. In bad seasons like the last, those out of doors are backward, and some of the wood does not ripen so well, causing the pruning to be done late, and this late pruning causes the vines to bleed when the sap rushes up the stem in the spring. In many cases I have found it very difficult to stop this bleeding, having tried almost everything, both at the time they were pruned, as well as when they began to bleed. I have found nothing in any way certain but the potato. I cut a small one in half, then in quarters, and, after that, stick a piece on the end of the stem, or lateral, so as to quite cover that part where it has been pruned. This is a certain, and, I may say, an instantaneous cure; the bleeding stops at once. A vine with two laterals, four feet long each, was shortened to two eyes each on the 22nd of this month, but did not bleed. Pieces of potato were stuck on at once. If any other remedy has been applied, the vine would in all probability have bled to death, or nearly so. Now, what I want to ask is, if you, or any of your scientific friends, would be so kind as to tell me what is the reason the potato stops the bleeding when a vine is wounded. A friend here, says it is the starch Now I do not think, if I put on a pound of starch, if it could be applied to a vine, it would stop the bleeding My opinion is that it is the solanine or atropine that is in the potato, when it begins to grow in the spring. which causes the sap to stop running, although asparagin, azote, &c., may be also found in the root. I shall feel much obliged to you, or any of your scientific friends, if they would give this subject their earliest attention. Although this seems very chemical your botanical knowledge may throw more light on it than if I had written to a Professor of Chemistry.—*Arthur Trollope, Eastgate, Lincoln.*" Possibly the result may be mechanical merely, and due to the coagulation of the gummy juices of the potato by the tannin in the vine, which thus would act in the same manner as collodion. We should be glad to hear with what success others have tried this plan.—EDS.

The Apiary.

How to Italianize an Apiary.

As this is an important question to bee-keepers who have purchased Italian queens, I will state a plan which may be easily practised by the merest novice with success. As soon as spring opens and the bees commence to fly freely, feed your Italian stock a small quantity every day, which will have the effect of causing early breeding, and the rearing of drones much sooner than would otherwise be the case. If the Italian stock is in a cellar or other warm room, where it is convenient, it would even be an advantage to feed for a week or so before it was warm enough to set them out. In this case, however, they should be allowed to fly on some warm day before commencing to feed. A large amount of feed is not at all necessary, but would even be injurious. A small quantity each day is what is required. Half a teacup full at one feeding is plenty for any stock. The feed may be made of any kind of sugar, made into thin syrup. As soon as the drones commence to appear, the Italian queen may be removed and given to another stock. The Italian stock, finding their queen is missing, will at once start from two to a dozen or more queen-cells. On the tenth day after the queen is removed the queen-cells will be ready to cut out. It will not do to wait any longer, as one of the queens might hatch and destroy all the others. As soon as you are ready to cut out the cells, go first to a stock you wish to Italianize, find and capture the old queen, and destroy her; now cut out a queen-cell from your Italian stock and introduce it into a card of comb near the centre, or where the brood is located, doing the same with as many stocks as you have queen-cells; for it is advisable to leave two or three cells in the Italian stock, and not cut them out until you know whether the stocks to which you have introduced queen-cells receive them. This may be determined the next day by examining, and if any cells have been destroyed they may be replaced with those left in the Italian stock. One queen-cell, however, must be left in the Italian stock to hatch, otherwise it would be queenless. About one out of every ten or twelve stocks will destroy the queen-cell, and another may be given it. It will at once be seen that these queen-cells will hatch pure queens, and there being no drones in the apiary except Italians, they will of course meet with them and be pure, or should there happen to be other drones, and they should meet with them, they would produce hybrid workers, and what is generally considered pure drones. By following up this plan you will be able to get all your stocks into hybrids, at least, the first year, and many of them may be pure; the second year you may get them all pure.

Wintering Bees in Quebec.

To the Editor of THE CANADA FARMER:

SIR,—In the matter of wintering bees in this cold corner of the Dominion, those seem to do best who are not too fussy over them. Some of my friends put them in cellars where it never freezes. This is wrong: it keeps them lively, which makes it necessary that *they should eat*. It is better to put them in a place where they may suffer enough cold to bring them to a half torpid condition, for bees can bear a great deal of *dry* cold. The best plan is, however, to place your hives on boards covered with hay or straw, pack them round, and cover them over with the same. Shelter them from the north and north-west winds by a back of boards; and if you have a roof of the same, it will be as well. This last is in case it rains, and should not be close to the hives. Over all shovel plenty of snow, a protection that will ensure their comfort till the end of April. We have not yet attained to the refinements of bee-keeping down here; but we keep bees successfully nevertheless; and I hope soon to see double the number of people engaging in the interesting occupation. One man appeared on our market who possesses sixty hives, and took one hundred and fifty boxes of honey from them this season, worth about ninety cents the box, making a total value of $135—a nice haul for the mere trouble of looking after them. Honey in the comb sells at fifteen cents per lb., and about thirteen cents in the liquid state. Our winters are very favourable to the bee, on account of their steady cold, and the abundance of snow. Our summers are so short that it astonishes me that they can collect enough honey for their support, yet the cheapness of the article is a proof that they can. We must hope that the CANADA FARMER will be the means of extending an interest in this direction.

PHILA.

Quebec, December 9th, 1867.

Miscellaneous.

The First Practical Reaping Machine.

At a recent meeting of the "British Association," the Rev. Patrick Bell of Carmyllie, Scotland, who claims to be the inventor of the reaping machine, gave the history of his invention. A pair of shears suggested to him the idea upon which to construct the cutters, the fundamental part of the machine. Mr. Bell tells the story of his first attempt as follows:

After making my calculations as to size, etc., I joined a quantity of rough sticks together, and called them a frame. Then I made cutters of wood of every part that required to be made of iron and steel. I sent these piece by piece, as I required them, to the blacksmith, with the instructions to make a thing of iron as like the wooden ones sent as possible. When I got a few of the pieces from the smith, I finished them with the file, and secured each to its proper place. I remember the cutters gave me a world of trouble and vexation. When they came into my hands they were in a very rude state, and required much filing, grinding and fitting. By dint of patient application I got the whole into a sufficiently perfect state, as I thought, for trial.

One day an eavesdropper might have seen me busily but stealthily engaged in conveying earth in a common wheelbarrow into my workshop. When the floor was covered to the depth of some six inches, I proceeded to compress the loose mold with my feet. I next went to an old stack that happened to be in the barnyard, and drawing a sheaf of oats out of it, and carrying it to the workshop, I planted it stalk by stalk at about the same thickness at which I knew it would have grown in the field. This done, I shut and barred the door, and then going behind the machine I pushed it forward with all my might through the planted oats. As soon as I recovered my breath I anxiously examined how the work had been done. I found that it had been all very well cut, but it was lying higgedly-piggledy, in such a mess as would have utterly disgraced me in the harvest field. Upon the whole, however, I was not discouraged, but rather encouraged by this first experiment.

HOME MIRTH.—Don't be afraid of a little fun at home, good people! Don't shut up your houses lest the sun should fade your carpets—and your hearts, lest a hearty laugh shake down some of the musty old cobwebs there. If you want to ruin your sons, let them think that all mirth and social enjoyment must be left on the threshold without, when they come home at night. When once a home is regarded as only a place to eat, drink and sleep in, the work is begun that ends in gambling houses and reckless degradation. Young people must have fun and relaxation somewhere; if they do not find it at their own hearthstones, it will be sought at other and perhaps less profitable places. Therefore, let the fire burn brightly at night, and make the homestead delightful with all those little arts that parents so perfectly understand. Don't repress the buoyant spirits of your children. Half an hour of merriment round the lamp and firelight of a home, blots out the remembrance of many a care and annoyance during the day; and the best safeguard they can take with them into the world is the unseen influence of a bright little domestic sanctum.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Dec. 30th, 1867.

THE produce market remains firm, the tendency in prices still continuing upward.

Flour—The market is firm, with, however, very few lots changing hands. No. 1 superfine is held at $7, but there are no buyers at over $6 75. A few sales have been made during the past week at the latter price.

Wheat—The market has advanced since last report, and the tendency in prices is still upwards. Spring Wheat is in good demand for milling purposes, and millers are freely offering $1 50 for Spring by the car load; $1 52 has been paid in a few instances. On the street market $1 50 has been the ruling price for Spring Fall Wheat is entirely nominal, no sales having been reported either on the street or by car load since our last report.

Oats—Selling only in a retail way, prices ranged from 53c to 55c

Barley—Prices have advanced. The highest price ever paid in this market was paid during the past week, viz., $1 10, at which price a few car loads sold. From $1 to $1 05 is now freely offered for car loads, and about the same prices are paid on the street market.

Peas.—Market quiet. Very little doing. Prices are nominal—for choice lots on street market from 68c to 70c would be paid.

Bran—Scarce. Holders ask $20.

Pork—Held firmly at $18 for mess; $17 for thin do, and $15 for prime.

Dressed Hogs—Lots arriving by cars freely offered at $5 25. A few car loads sold at $5. On the market, bacon hogs bring $5 25 to $5 35; mess hogs $5 50 to $5 75.

Butter—Offering in small lots at from 16c to 18c for dairy; store packed, a few sales have been made at 14c; pound rolls on the market at 20c to 22c.

Eggs—A few large lots have been offering at 16c, selling on the market at 22c.

Cut Meats—There are no sales transpiring. No large lots are, however, held, as packers are making weekly shipments.

Lard—No sales; prices nominal.

Cheese—No sales; prices nominal.

Hay—Selling at from $12 to $16.

Straw—Selling at from $10 to $13.

Salt—American, on the wharf, selling at $1 75 per barrel.

Montreal Markets.—Dec 28.—*Flour*—Superior extra, $8 to $8 25; extra, $7 80 to $8; fancy, $7 50 to $7 60; Welland Canal super. $7 20 to $7 25; super. No. 1 Canada wheat, $7 20 to $7 35; super. fine No. 1 Western wheat, $7 20 to $7 25; superfine No. 2 Western wheat, $6 85 to $7; bag flour, per 100 lbs, $6 50 to $6 60. *Wheat*—Canada fall, none; spring, $1 63; Western, $1 60. *Oats* Per 32 lbs, 42c. *Barley*—Per 48 lbs, 85c to 90c. *Butter*—Dairy, 16c to 19c, storepacked, 14c to 16c. *Ashes*—Pots, $5 45 to $5 50, pearls, $5 95 to $6. *Pork*—Mess, $18 25 to $18 50; Prime Mess, $12 to $12 50; Prime, $11 to $11 50. *Dressed Hogs*—$5 75 to $6. *Peas*—81c to 82c per 66 lbs. *Rye Flour*—None.

REMARKS.

Flour—Receipts moderate; market very quiet; rates unchanged. *Grain*—Wheat unchanged; other grains, no transactions. *Provisions*—Pork, quiet at former rates; hogs, heavy arrivals; demand languid, and tendency to lower rates. *Butter*—Unchanged. *Ashes*—Dull; rates unchanged.

Milwaukee Markets. Dec. 28.—Wm. Young & Co's Noon Report—*Wheat*—Receipts, 16,000 bush; No. 1, in store, at $1 92½c; No. 2, in store, at $1 81. Flour and Pork unchanged.

N. Y. Produce Market, Dec. 28.—*Flour*—Dull; 5c to 10c lower for common grades, receipts, 7,075 barrels, sales 3,900 barrels at $8 30 to $9 for super State and Western, $9 40 to $10 50 for common to choice extra State; $9 30 to $12 for common to choice extra Western; $9 80 to $13 for common to choice round hoop Ohio. *Rye Flour*—Steady at $7 50 to $9 50. *Wheat*—Rather more steady, receipts, 190 bushels, sales 30,000 bushels, $2 29 to $2 30 for No. 2 Spring; $2 55 to $2 57 for Red Amber Jersey; $3 15 to $3 35 for white Michigan, and $2 75 for white Southern. *Rye*—Quiet; receipts, 406 bushels, sales, 1,000 bushels State at $1 70. *Corn*—1c lower; receipts, 25,589 bushels; sales 36,000 bushels at $1 34 to $1 36½ for new mixed Western afloat; $1 50 for old afloat, $1 37 for new Western yellow *Barley*—Quiet; receipts, none. *Oats*—Quiet; receipts, 2,080 bushels, sales, 21,000 bushels at 84c for Western in store, and 86½c for do afloat, *Pork*—Quiet and steady at $20 90 to $20 95 for Mess. *Lard*—Unchanged; sales at 12½c to 13c.

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