*LETTERS on business should always be addressed to the PUBLISHER; while communications intended for insertion in the paper, or relating to the Editorial department, to ensure prompt attention, must be addressed to EDITOR RURAL CANADIAN.*

*Mr. J. A. McLEAN, Manager Advertising Department of this paper, is authorized to make contracts at our regular rates.*

**The Rural Canadian.**

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## *BIRD LORE.*

Everybody loves the feathered tribe, but few have any large knowledge of their peculiarities and habits. Many farmers are so ignorant of ornithology, that they cannot distinguish between their friends and their foes among birds. Here and there you find a person who has made this branch of natural history a special study, but beyond being able to distinguish a robin from an owl, there stretches a vast realm of popular ignorance. Most of the books on this subject are costly, and out of reach by the million. But little is said in our agricultural papers concerning this branch of science. It is therefore with much pleasure that we present our readers, in this issue of the RURAL CANADIAN, with the first of a series of articles, written in a simple and lively style, by a gentleman who has for many years been an observant student of bird life, and is well qualified to impart what he knows. We hope that all, and especially the young readers of this paper, will study these articles with diligent attention.

## *DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO.*

We learn from Mr. C. E. Chadwick, the secretary, that the above-named Association will hold its annual meeting in Woodstock, Ont., on the 1st, 2nd, and 3rd days of February. The programme has not yet been issued, but arrangements are in progress to render it highly instructive and interesting. Some of the ablest and most practical dairymen and agriculturists in the United States and Canada will, no doubt, be present; and not only those engaged in the dairy business, but farmers, and the public generally, will do well to attend.

## *NATIONAL FARMERS' ALLIANCE.*

From a report of the annual meeting of the above-named body, recently held in Chicago, the organization would seem to be assuming considerable importance. Delegates were present from nine States. The secretary reported 1,000 subordinate alliances, comprising a membership of 24,000. These alliances are distributed as follows:—Nebraska, 291; Kansas, 245; Iowa, 150; New York, 60; Wisconsin, 51; Michigan, 19; Missouri, 19; Indiana, 10; Illinois, 45; Minnesota, 50. Among others, the following resolutions were adopted:—

"*Resolved*, That all property, real and personal, corporate and individual, should be equally taxed, and that the holders of mortgages and other lines of property should be taxed for their lien, and the owner for the balance of his property.

"*Resolved*, That we favour a just income tax.

"*Resolved*, That the combination and consolidation of railroad capital and influence of the United States in the maintenance of an oppressive and tyrannical transportation system is an accomplished fact, demanding instant, vigorous and unceasing action on the part of the producers of the country to remedy the same; and we earnestly urge all farmers to organize through the Farmers' Alliance or other organizations for systematic and persistent political action, and to subordinate other political questions to the emancipation of the people from this terrible oppression.

"*Resolved*, That the adulteration of food is as dishonest, and more injurious, than counterfeiting money, and should be punished as severely."

## *HOW TO PRESERVE THE "RURAL CANADIAN."*

A correspondent of the *Country Gentleman* tells the readers of that journal how he manages to keep it always handy for reference, and in a way that admits of binding the yearly volume in a very cheap and simple manner. The same method will work equally well with the RURAL CANADIAN, and as it is at the outset of its career, the following suggestions may prove serviceable to those who wish to keep it from the commencement, and always have it in readable shape:—

"I have a board of the length of the *Country Gentleman*, about ¾ of an inch thick and 8 inches broad. Three-eighths of an inch from one edge of this board are made 9 holes with a brad awl. Two of these holes are about ¼ of an inch from the ends, and the other 7 holes equi-distant between them. I lay this board on each number of the paper as it comes, edges and ends corresponding, and with the brad awl punch 9 holes in it—the holes in the board being the guide. I use three shoe strings to keep the numbers together during the year—the tinned ends answering same as needles. At the end of a volume I take a darning needle and fine strong twine, and by means of the holes sew all together, running from one side to the other. A slender needle will pass the twine without difficulty. I get a cheap binding put on, and my bookbinder says my stitching is as good as any that can be made. If care be exercised in matching the gauge-board and the paper when making the holes, the 52 numbers will go together as even as the regular bookbinder's stitch."

## *THE EARTH-WORM IN AGRICULTURE.*

Long ago, the poet Cowper refused to enter on his list of friends the man "who needlessly sets foot upon a worm." But the kind-hearted poet was quite ignorant of the claims this much-despised little creature has for consideration at the hands of man. Most of us must confess to a similar degree of ignorance. It is, however, in a fair way of being dissipated. The celebrated naturalist, Darwin, has recently issued a book entitled, "The Formation of Vegetable Mould through the Action of Worms, with Observations on their Habits." This work embodies observations extending over nearly half a century. As long ago as 1837, its author produced a paper, "On the Formation of Mould," which showed that the gradual sinking of bits of burnt marl, cinders and other hard substances lying on the surface of meadows, was due to the large quantities of fine earth continually brought up by worms in the form of castings, and ever since that time, patient and close observation of the habits of these little creatures has been kept up by this gifted scientist. He has kept them in pots of earth in his library, and carried on various experiments not only in-doors but out of doors. One of these experiments is especially interesting. It has extended over 30 years, and consisted of spreading a layer of chalk over a portion of a field. After the lapse of time just specified, a trench was dug across the field, when it was found that the chalk layer had been buried seven inches below the surface of the ground. An acre of old pasture land is estimated to be tenanted by 58,700 worms, weighing 360 pounds, and throwing up annually *fifteen tons* of earth!

In regard to the services rendered by worms in the preparation of the soil, we have the following interesting summary:—

"Worms prepare the ground in an excellent manner for the growth of fibrous-rooted plants and for seedlings of all kinds. They periodically expose the mould to the air, and sift it so that no stones larger than the particles which they can swallow are left in it. They mingle the whole intimately together, like a gardener who prepares fine soil for his choicest plants. In this state it is well fitted to retain moisture and to absorb all soluble substances, as well as for the process of nitrification. The bones of dead animals, the harder parts of insects, the shells of land-molluscs, leaves, twigs, etc., are before long all buried beneath the accumulated castings of worms, and are thus brought in a more or less decayed state within reach of the roots of plants. Worms likewise drag an infinite number of dead leaves and other parts of plants into their burrows, partly for the sake of plugging them up and partly as food. The leaves which are dragged into the burrows as food, after being torn into the finest shreds, partially digested, and saturated with the intestinal and urinary secretions, are commingled with much earth. This earth forms the dark-coloured, rich humus which almost everywhere covers the surface of the land with a fairly well-defined layer of mantle.

"When we behold a wide, tuft-covered expanse, we should remember that its smoothness, on which so much of its beauty depends, is mainly due to all the inequalities having been slowly levelled by worms. It is a marvellous reflection that the whole of the superficial mould over any such expanse has passed, and will again pass, every few years through the bodies of worms. The plough is one of the most ancient and most valuable of man's inventions; but long before he existed the land was in fact regularly ploughed, and still continues to be thus ploughed by earth worms. It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly organized creatures."

## *THE SNOW PLOUGH.*

Digging paths in winter is a slow and laborious operation, even with the lightest and most effective snow-shovel. Few are aware how pleasantly and expeditiously the work may be done by the use of a one-horse snow plough. It is described in the following article, which is wandering among the newspapers without credit to any particular source, but is nevertheless entirely trustworthy. Not only are the suggestions it makes deserving of the attention of farmers, but town and village authorities might confer a great public benefit, at small cost, by setting one of these snow ploughs a-going through their streets, and clearing the side-walks after every snow-fall:—

"Every farmer who has not already done so, should at once provide himself with a small one-horse snow plough. But few labour-saving implements do more satisfactory work, or save the performance of more disagreable hand labour than a snow plough, which any farmer can make in a few hours. On many farms, the labour during the winter, of frequently digging long lines of paths to the public road, and between the farm buildings, makes serious inroads on the time of the farmer, if he attempts to do it himself; and if he leaves it for the boys to do, before and after school, it makes serious inroads on their patience and good nature, and generally requires positive orders from the father every time it snows, to get them to bend their backs to the disagreeable work, if it is to be done by hand labour with a shovel. But with a horse and snow plough, how wonderful the change! The father no longer has to scold, coax, or even remind the boys that the paths are to be dug, but as soon as the snow begins to fall the boys are pleading for the privilege of getting out the horse and snow plough. The question is no longer which boy shall be required to clear the paths, but which shall be permitted the privilege of doing it. All of the paths which by hand labour required hours of hard labour to dig, are, with the horse and plough, dug in a few minutes, and the boy sits on the plough and rides, and enjoys it so well that he is not satisfied to stop until he has cleared all the paths on the farm, and also to the neighbours on either side.

"A cheap and easy way to make a snow plough is to take two boards, from twelve to fifteen inches wide and four feet long, nail the two ends together and spread the other ends thirty inches apart, making them the shape of a V; confine them in place with boards nailed across the top, and by a board across the end four or five inches narrower than the sides, so if the path is not perfectly smooth, it will not catch the stones; near the front end an iron bolt should be placed across to hitch the horse to; on the top should be placed a box for the driver to sit on, and the plough is complete. The labour is so simple and the cost so small that there is no excuse for a farmer being without a snow plough."

## *SCIENCE AND AGRICULTURE.*

Professor Panton, of the Ontario Agricultural College, recently gave a lecture on the above subject in the village of Ospringe, of which the following is a very brief synopsis:—

"At the outset he said the question which he desired to consider to-night was in what respect may the study of science be said to benefit the student of agriculture. His own faith in this respect was strong, and his love for the study of science great; consequently, when he appeared to advocate its claims before a farming community, he was sincere in his remarks. It was no flourish of rhetoric—no attempt at oratorical display—but what was said were the honest convictions of one who believed science would do for the farmer all that was claimed for it.

"It would be difficult to give all that was said by the lecturer, but a fair outline of his remarks can be given.

"1. Science in *mental training*. Under this head he showed how certain faculties are improved by the study of science. Their observation, memory, comparison, inference and method were all of great importance to a farmer, and called into requisition in the work of every day.