THE FARMER'S ADVOCATE & HOME MAGAZINE

THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

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1. **The Farmer's Advocate** is published on the first and fifteenth of each month.

It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for farmers, dairymen, gardners and stockmen, of any publication in Canada.

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11. **We Invite Farmers** to write us on any agricultural topic. We are always pleased to receive practical articles. For such as we consider valuable we will pay ten cents per inch printed matter. Criticisms of Articles, Suggestions How to Improve the ADVOCATE, Descriptions of New Grains, Roots or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome, Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

12. **Replies** to circulars and letters of enquiry sent from this office will not be paid for as provided above.

13. **No anonymous communications** or enquiries will receive attention.

14. **Letters** intended for publication should be written on one side of the paper only.

15. **All communications** in reference to any matter connected with this paper should be addressed as below, and not to any individual connected with the paper.

Address—

THE FARMER'S ADVOCATE, or
THE WILLIAM WELD CO.,
LONDON, ONTARIO, CANADA.

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Our Subscription Prizes.

In our advertising department, page 19, will be found a description of a number of subscription prizes. All goods offered by us are warranted as represented, first-class in every particular. The rings are solid gold and the stones of good quality and well-set. The watch is a curiously cheap device, but a substantial time-keeper, and we believe will give good satisfaction. The live stock offered will be selected from the herds and flocks of the most reliable and capable breeders. The other premiums are meritorious. Our subscription pictures, "Canada's Columbian Victories" and "Canada's Pride," are fine works of art, not cheap prints or chromos. We ask every old subscriber to send us at least one new name.

Road Improvement.

One of the obstacles to the prosperity of farmers is the condition of the country roads. Roads are considered an evidence of the civilization of the inhabitants of a country, and if the rule has no exceptions there must be many savages still left in Canada.

The chief reason that so many of our most intelligent young people leave the farm is because of their isolated condition caused by the mud embargo between their homes and the neighbors' houses or the town. What makes this matter all the more important is the fact that the farmer is kept at home in just that season of the year when he has the most leisure. How often do you hear a farmer say, when spoken to about some institute meeting or other social gathering, that he had intended to go but the roads were so bad that he had to give it up. There is not only a loss socially but also financially, for good roads mean better prices. The present condition of our highways compel the marketing of the produce of our farms at the time when the road is passable, and this also is the time when prices are usually at the lowest point. Good roads will, therefore, not only save much valuable time in marketing, increase the value of property and save wear and tear of teams and vehicles, but will promote the comfort, culture and social pleasures on the farm. Farmers all admit the disadvantages of bad roads, but the question is, What shall we do to remedy this state of affairs?

In many localities it seems hopeless to attempt any improvement, because the amount of traffic will not warrant the expense of building macadamized roads. In such cases the first essential is to thoroughly drain, for it is known that water in most cases is the cause of our bad roads. Who has not noticed, in driving through the country, that when the trees overhang so that the road is shaded, thus preventing the sun from drying up the soil, that the road is nearly always in bad condition, so that when we come to a piece of bush we expect to find rough and muddy roads? While, on the other hand, everyone has noticed that where a hill or grade occurs in a road, the surface is always much better than the condition of the level pieces adjoining. This is sometimes due to a change in the character of the soil, but in the majority of cases is due to the fact that water falling on the road is rapidly drained away and not allowed to soak in and destroy the bed. Upon this point Prof. C. D. Wing, Madison, Wis., says: "Much can be done by a thorough system of draining. If as much care was taken to keep water away from well-constructed roads as is taken to keep it out of the cellars of the houses, or from coming through the roofs, the road question would be solved in many localities, and greatly helped in all." When the roads are well drained the use of the road machine, harrow, cultivator and roller on the clay roads will keep them in fair condition.

As before stated, the first step in the improvement of a road is to thoroughly drain it, for water is the great foe of good roads, and the sooner we can impress this upon the mind of each pathmaster in the county, the sooner will they do away with the large ponds which are often seen along the sides of the road, and which have no outlet except by slowly trickling through a culvert which is nearly filled with dirt, and must wait until the annual work on the roads next spring to be cleaned out, when a few hours' time would do it and also prevent injury to the road, stoppage of traffic, and much wear and tear on men and teams. Any complete system of drainage must embrace not only the removal of surface water, but that which filters through the ground. If this is not done the water will soak by capillary attraction from the wet subsoil underlying, and render the road-bed soft and spongy, and if gravel or stone has been applied, it will sink down through the mud and so become useless. Tile drains have been used to remedy this defect, and have given good satisfaction.

Mr. J. J. W. Billingsley, in a paper read before the Good Roads Congress, at Chicago, has the following on the subject: "The remedy is thorough drainage. In fact, the basis of all road improvement in the country is thorough drainage of the road surface and the foundation of the road embankment." We are convinced that the best improvement of our highways will combine at least three essential features, which are:

1. A road embankment of sufficient height to be at least above overflow from extraordinary rainfall, and sufficiently crowning to shed the water readily, and wide enough to accommodate the travel, and not of greater width.

2. That the road shall have open ditches on each side of sufficient capacity to carry all flood water from the roadway, and from lands adjoining, into the nearest watercourse without hindrance. The surface or open ditches should have such a perfect grade that no water will find a lodgment along the line of the road on either side.

3. That two lines of tile drains be placed parallel with the roads, one on each side, at the base of the embankment.

The underdrains should be laid at the depth of three or more feet. The size of the tile will depend on the length of the drain and the fall, but it is probable that they should not be less than four inches in diameter in any case, and as much larger as the needs may require. The three essential features named embrace two systems—the removal of the surface water speedily and effectually; the removal of the water of saturation remaining after the removal of the surface water and the prevention of the flow of soil water under the road-bed. The underdrains should have a uniform descent or grade to some natural stream or outlet, where the water discharged will flow away freely and at no time back up in the drain. The crowning of the road should be sufficient to cause the water falling upon the surface of the road to flow readily through the side ditches. If it fails to flow away, and remains in the ruts and depressions, it will increase the amount of mud and the inconvenience of travel. Roads in such a condition should have road machines passed over them as often as necessary to make and keep the surface level.

It is a mistaken idea that an underdrain laid in the middle of the road will drain the surface of the road. The travel and the action of the water falling upon the road will so effectually cover the surface that no water on the road will find its way down to the drain thus laid. To the contrary, the horse tracks and ruts will hold water like earthen vessels until it is removed by evaporation or otherwise. Roads graveled and drained as proposed will cost from $400 to $500 a mile, but when done they will be good roads for eleven months and commendably passable for the remainder of the year with a little timely repair. Where gravel and stone are not to be had at a reasonable cost we know of no improvement so satisfactory in all respects as the roads well graded and sufficiently drained. Where gravel or broken stone can be had it will be found that the thorough drainage of the road as proposed will save half the gravel or stone that would otherwise be required to make a good road. A dry foundation to build upon is the most important factor in road construction. Tile drains may be used to intercept water percolating through the earth of the higher ground adjacent and likely to interfere with the road, or springs or secret places under the road-bed may be drained out with the tile so as not to interfere with the enbankment. After a road has been put into good condition and thoroughly underdrained, nothing need be done except to keep the surface of the travelway smooth and open ditches free from any drift accumulations.

The Ontario Creameries Convention.

The ninth annnal convention of the Ontario Creameries Association will be held in the city of Belleville, on the 10th, 11th and 12th of January, 1894.

This convention promises to be one of the best dairy meetings ever held in the province. A grand bill of fare has been provided for the dairymen, and all interested in this great industry should make a special effort to be present. Upon the programme we see the names of such well-known men as Prof. James, Deputy Minister of Agriculture; Prof. Robertson, Dominion Dairy Commissioner; Prof. Frank Shutt, Chemist, Dominion Experimental Farm, Ottawa; Prof. Dean, Ontario Agricultural College; John S. Pearce, seedsman and dairy goods, London; John Boyd, Chicago; A. A. Ayer, Montreal; J. W. Wheaton, London, Secretary of the Western Dairymen's Association; W. G. Walton, Hamilton; John H. Croil, Autsville; Mark Sprague, Ameliasburg. Programmes and further particulars may be obtained from the Secretary, John Hannah, Seaforth, Ont.

The Agricultural and Experimental Union.

The fifteenth annual meeting of the above association, which was held at the Ontario Agricultural College on the 21st and 22nd of December, was an unqualified success in every particular.

Besides the large number of students and ex-students in attendance, there were present a number of prominent agriculturists from both Canada and the United States. Among the number were: The Hon. John Dryden, Minister of Agriculture; Prof. C. C. James, Deputy-Minister of Agriculture; Prof. Thos. F. Hunt, B. S., Prof. of Agriculture, Columbus, Ohio; John S. Pearce, seedsman and dairy goods, London; J. W. Wheaton, London, Secretary of the Western Dairymen's Association; T. B. Millar, Inspector for the same society; Abner Picket, Vice-Pres. Bee-Keepers' Association; W. W. Hilborn, horticulturist, Leamington, and many other well-known agriculturists.

The reports of the different experimental committees showed that much interest was taken in experimental work conducted by members of the Union and the farmers generally throughout the province.

The papers and addresses were practical and pointed, and were listened to with marked attention. The discussions were lively and brought out the opinions of men of experience who were present.

We regret that space will not allow us to give a full report in this issue, but one will appear in our issue of January 15th.