modern two wheeled plough of Ransome and Sims, of Ipswich, was far less fatiguing to the horses that drew it than the best specimens of the Scotch iron swing-plough, which, up to that time, had been considered not only the most perfect implement of the kind as far as its capability of cutting out and laying in a correct shape an ordinary furrow went, but also the plough that took less out of the horses than any of its almost innumerable rivals. Wheels had always been scoffed at by all farmers, except those who had been accustomed to the old Kentish "Turnwrest" plough, and the Berkshire two wheeled plough, both of them ancient importations from Normandy or Brittany, where cumbrous machines not unlike those I have mentioned may still be seen at work, in fact I have before me an engraving of a picture exhibited at the Paris *Salon* in 1882, painted by Mr. F. A Bridgman, a young American who, from his name, ought to be a far away cousin of mine; and in this picture "*La Plantation du Colza*"—the transplanting of colza or rape, for seed purposes—is a really exquisitely drawn representation of the two wheeled plough, with its heavy beam resting on a gallows, and drawn by three powerful Norman horses, harnessed abreast.

Well, the Scotch ploughmen, who had earned extra wages as being the only men capable of holding a swing plough properly, were horribly disgusted at the success of the wheel plough, and with reason; for, whereas a farmer who was accustomed to keep five ploughs at work had been obliged to hire and pay high wages to five good men, if he wanted his work well done, he found that now he could do with one skilled ploughman and four strong lads, which would make a difference of some sixteen or eighteen shillings a week in his wages account. These two wheel modern ploughs, being once set to turn a furrow of any desired depth and width, would go on doing their appointed duty, without that duty depending in the least degree on the skill of the holder: when the head ploughman had set the wheels right at the beginning of the job, unless the lad in charge of the plough played some trick with it, the furrows, one after another, were faultlessly turned. Any alteration, I need not tell my practical readers, would be immediately detected by the want of equality and the position of the furrows where the change began.

I have been led to set down these notes by a report, by Professor Sanborn, on "the draught of ploughs as tested by the dynamometer." The report is a very exhaustive one, but it is one, amongst a thousand other instances, of the little effect the painsful experiments which have been carried on for so many years—more than 45—under the watchful superintendance of the Royal Agricultural Society of England, have had on the minds of the agricultural teachers of this continent. If I were to suggest an object for his study to a young professor in the science, I should advise him to imbue his mind thoroughly with the contents of the forty-five volumes of the Journal of the Society just named. Many of the practices therein described are, I am well aware, quite unsuited to our pockets, our climate and our soils; but, the *principles* involved in any science are true under any sky, and as the food and growth of plants and animals are the same in England as they are in Canada, so the means of producing their food and growth must be the same. It may pay better here to grow corn than to grow roots, but the same processes and the same supplies of food that will grow roots in England are required for their production here. For the last twenty years—so the keeper of the library of the Natal History Society of Montreal tells me—a number of volumes of the Journal I speak of have been lying in the dusty recesses of a room in their building, and, with the exception of myself, no one has had the curiosity to open one of them! But I have got a long way from Professor Sanborn on the use of the wheel-plough.

"The use of the wheel under the end of the plough-beam," says Mr. Sanborn, "is an old practice, now nearly out of use. The leading dealers at Columbia did not understand me when I inquired for a plough with a wheel on it, and consequently I had to get one made for the trial to be related." From theoretical principles, wheels have been declared useless, and Scotchmen, whom none excel with the plough, declare wheels to be an injury to the ploughman, who, depending upon them to regulate depth, soon overlooks their adjustment." As I have already pointed out, this is not the real reason for the objection. One great advantage of the wheels, or even of one wheel, is that, as the ploughman has not to regulate the depth of the furrow by raising or depressing the stilts, he is deprived of all excuse for leaning on them. How often have I seen a tall, lazy fellow, with a swing plough, towards the end of a "yoking," making the horses draw a good part of his weight. Even Stephen, the author of *The Book of the Farm*, with all his love for the East Lothian or Small's plough, is obliged to confess, "that nothing can exceed the beauty of the work done by the English ploughmen with their wheel-ploughs." However, he need not go far a field to see that kind of work, as there are plenty of wheel-ploughs, from Howard's, Ransome's, and other factories, now-a-days in Scotland itself. I saw, last May, at the Ottawa Experimental Farm, several ploughs at work with a skim-coulter and a wheel to each, and very well they were behaving.

The following tests are with the "Oliver chilled plough," I do not profess to understand the advantage of a furrow twice as broad as it is deep, except in stirring fallows, and for that work I prefer a grubber.

	Width of furrow.	Depth of furrow.	Square inches turned.	Draft.	Draft per sq. inch.
	in.	in.	in.	lbs.	lbs.
	16 4	7 55	123 82	541	4 37
No. 1 truck on.....	16 9	7 7	130 13	484	3 72
	15 6	8 2	127 92	512	4 00
Average.....	16 30	7 81	127 30	512 33	4 03
No. 1 wheel off.....	16 3	8 2	133 66	625	4 71
No. 2 wheel on.....	15 1	8 35	126 08	578	4 58
No. 2 wheel off.....	15 4	8 7	133 98	671	5 01
Plow No. 3	11 33	7 71	87 35	500	6 00
wheel on	11 71	7 08	79 08		
Plow No. 3	14 4	7 03	82 35	522	6 95
wheel off.....	12 2	6 75	87 35	624	
Average draft with wheel on.....					4 87
Average draft with wheel off.....					5 56
Per cent. of draft saved by wheel.....					14 1

"Here is a startling gain from a discarded and very simple practice. The reason for such a result was clearly discerned and visible to all Professor Sanborn's students. The bottom of the furrow was much smoother where the truck was used and the plow easier to hold."

Professor Sanborn uses what he calls a *truck*, a thickish bar of iron, I suppose, taking the place of a wheel, but the latter must act more smoothly.

The professor's remarks about harnessing horses for ploughing are, in the main, judicious, but I must take exception to the following:

"I do not approve of sustaining the traces by a strap over the loins of the horse to hold them from the ground when turning at the ends of the furrow, in order to prevent the horse stepping on them."