manure goes—precisely where it is wanted. Very few intelligent agriculturists object to top-dressing with manure in the present day. Even when dung is to be ploughed in, it is considered by many advisable to spread and leave it on the ground a while, and let the sun, air, and rain act upon it. Old meadows and fields of winter wheat may be benefitted greatly by a winter mulch. The effect of such a course is so marked, that only a trial is needed to convince the most sceptical of the wisdom of the plan. Any description of manure may be used Even raw and undecomposed material answers a good purpose, though of course it is better well rotted. It should be carefully, evenly, and finely spread. When put on early in the fall, it will often stimulate a growth of grass or young grain before winter sets in, such as itself acts as an additional mulch. It answers well, however, if put on when the first hard frost comes. The ground being hard enough to bear the horses and waggon without their sinking into it, all injury that might be done to the grass or grain roots is prevented.

Canada Thistles and Cultivation.

To the Editor of The Canada Farmer:

Sir,—In your issue of the 15th ult., I observed an article under the above head, from "D. H. O., in the *Country Gentleman*. The subject is an interesting one to the agriculturist, as the Canada thistle is, to him, not only an annoyance, but a positive damage. As the *achenium* is more bounteously provided with *pappus*, which serves as wings, than most of the order "Compositæ," its dissemination is very extensive. Hence its effectual eradication, as the cure for the evil, is very desirable.

I presume that no person will hesitate to allow with Mr. D. H. O., that if the hollow *culm* be so exposed as to be filled with water, saturating the root, it would tend to accelerate its decomposition. But the difficulty with this method is obvious. In very many instances it is not practicable, as neither farm nor farmer is in a condition to justify the operation. But the experience of the agricultural community would not lead them to the same ready acquiescence in the statement: "Cultivation will not destroy Canada thistles," but quite the contrary. Sorry would I be to see the day, when that industrial spirit which characterizes the "tillers of the ground," of our flourishing Province, should be superseded by that indolence which would induce them to say: "We will sit down, fold our hands, and allow thistles and noxious plants to grow, for 'cultivation will not destroy them'" Although it may require industry, perseverance, and all the experimental knowledge at the farmer's command, yet it can be done—they can be destroyed. In some sections of the Province the practice of fallowing during one season and sowing in the subsequent spring, is adopted with success.

To prevent the growth, diminish the quantity, and finally, to eradicate Canada thistles entirely from the soil, plough a moderate depth in June, when the thistles will have attained a pretty good size; then, after the lapse of ten or twelve days, when they will have summoned all their vegetative powers to repair their damages, plough again deeply. The previously severed *radix* will thereby be again disturbed, and its vitality nearly exhausted. During the warmest weather in July, harrow thoroughly, dragging them forth from their last mortal grasp after sustenance. Leave them on the surface of the ground for the remaining moisture to be evaporated from them by the intensity of the sun's rays. Life will become extinct, and the "curse of the ground" so far removed, that Canada thistles will not prevent the development of the desired plant. The field should be converted into meadow-land as soon as practicable, and another treated in a similar manner. Thus by alternate cultivation and mowing, they will be effectually removed, the farm reclaimed from their usurpation, and advanced to that high state of cultivation (may it be the ambition of every farmer,) which, from more copious products, would tend firmly to establish the conviction, that "*industry is itself a treasure.*" W. B. PRINGLE.

Montrose, Nov. 5, 1864.

Transmutation of Wheat into Chess.

To the Editor of The Canada Farmer:

Sir.—The object of this communication is to lay before the farmers of Canada, at least the scientific portion of them, through the columns of your valuable journal, my experience in regard to the subject of wheat being transmuted into chess, believing that the facts which I shall here state, and the conclusions to which I have arrived, will open to the curious enquirer a new field for experimental and philosophical investigation—one never yet explored, but, doubtless, rich in objects that will both interest and benefit mankind.

In March, 1819, I removed from the Niagara District to the New Purchase, as it was then called, Trafalgar being the township where I located, and where I purchased a farm of one hundred acres on the north side of Dundas street; with the farm I also acquired about five acres of fall wheat. In repairing and straightening the fence between the wheat and a pasture-field adjoining, I had occasion to throw into the latter a triangular piece at one corner, containing some four or five square rods, and this, I observed, the cows kept cropped very close until winter set in. When harvest time arrived, I was not only disappointed, but chagrined, to find that nearly one-half of my expected crop of wheat was literally chess—a circumstance which I attributed to the slovenly habits of the farmer who had preceded me, but I soon learned that all the farmers living on the street were either in a greater or less degree similarly afflicted. It may be necessary here to state that the district of country where I resided was originally covered with a dense pine forest, growing upon a hard, reddish, clay soil, with a slight covering of vegetable mould, hence, the roots of the trees being unable to penetrate the earth, spread upon the surface of the ground, something like net-work, and it was here and around the numerous stumps, and in the angles of the fences that chess grew in the greatest profusion. What was the cause of this? I knew that the farmers generally, as well as myself, took the utmost pains to sow the purest wheat that it was possible to obtain, and yet at harvest time there was the inevitable chess, and this, too, not only in the older cultivated fields on Dundas street, but extending far into the interior, the then newly surveyed townships of Esquesing, Erin, &c. Under such circumstances it is not to be wondered at that the farmers were generally impressed with the belief that "wheat turned into chess," an idea which I at first ridiculed as being not only absurd but impossible, not then believing that Nature in her seemingly uniform laws of production would indulge in such freaks as changing one variety of grain into another. Facts, however, accumulated so fast to sustain the farmers in their belief, and against myself, that in reflecting upon the subject it occurred to me to try an experiment, and see if wheat, uncultivated, would reproduce itself; if not, would it produce chess? and for this purpose I selected my seed with the greatest care from a sheaf of wheat, cutting off each ear separately and rubbing it out. I then repaired to my woodland, chose a clean spot, somewhat shady, raked off the leaves, sowed my wheat—a piece about twenty feet square—covered it with fine brush to keep off the birds; fenced it securely, and watched it closely, and had the satisfaction to see that it vegetated finely, and grew as well as could be expected under the circumstances. In the Spring I removed the brush, and was pleased to find that it had withstood the winter well. To return to my pasture-field, which I left at the setting in of winter. In the Spring I prepared it for a meadow, as it had been well seeded, and at mowing time cut from that portion of it which had been sown with wheat a most luxuriant crop of chess—not exactly chess, either, for on comparison I found that there was a slight change from that growing among my wheat; a change, too, that was more apparent when I mowed it the second year, it being understood that I pastured it after the first mowing until late again when winter set in—a practice too common among farmers; a practice, however, that was favourable to my experiments. In due time my little field of woodland wheat ripened, and what do my readers suppose the crop was composed of? It was entirely chess, and not an ear of wheat to be found among it! At this I was both surprised and delighted, surprised that nature did produce such changes in the vegetable world, and delighted that I had demonstrated the fact beyond the possibility of a doubt. I was led to try the experiment of growing wheat in the forest from the following circumstance:—At the time of my removal to Trafalgar, the township only extended one concession north of Dundas street, but the following year a large addition was made to it, and given out in 100 acre allotments to emigrants and others who had served in Canada during the war of 1812. I became the possessor of one of these, and performed my "settlement duties," which were to clear five acres fit for a crop, fence it, build a house of certain dimensions, and clear up the road allowance in front. It is proper to state here that this portion of the township was, in general, hard timbered land, consequently there was a deeper vegetable surface mould here than on Dundas street, with a similar subsoil of hard clay. I sowed my five acres with the purest wheat it was possible to obtain, harrowed it in thoroughly, and was pleased to find at harvest time that it was extremely free from chess, but owing to illness, it was late before I gathered it, and the consequence was that a great deal of it shelled out and fell upon the ground which I had not seeded with grass, and in the fall it presented the appearance of a perfect "mat" of wheat over the whole field, and I boasted to my neighbours that I would have another crop of wheat without the trouble of sowing, but was only laughed at for my simplicity. My new farm was nearly five miles from Dundas street, and in taking my seed to it through a crooked bush road on an ox-sled, one of the bags was torn, and scattered the wheat along for several rods, and this I observed afterwards was growing well, and remained undisturbed, as the road had been straightened, until harvest, when, led by curiosity, I examined it, and found the greater part of it chess, but nothing resembling wheat could I discover; but what now surprised me the most was its perfect greenness, with not the slightest appearance of ripening, and it never did ripen. It was as green the second year, or rather the third, as it ever had been, and more resembled some species of wild grass than it did either chess or wheat. To what cause was this change owing? was the question which I put to myself, and reflecting upon the subject, I came to the conclusion that it was due to one of two causes, or perhaps both combined, either to its growing entirely in the shade, or to the fact that it was sown as nature sows all its seeds, scattering them upon the ground without any tillage or covering of earth, and acting upon these ideas led to my woodland experiment, above related. In regard to my "self-sown" field of wheat, I would have been willing at harvest time to have paid five dollars for every ear of wheat that could have been found in it, and had it been mowed at the proper season, I believe it would have yielded two tons to the acre of excellent fodder.

A serious attack of sickness at this time, and from which I did not fully recover for fifteen years, put an end to my experiment, and compelled me to leave the country in search of medical aid in a foreign land, and from that time to this, with the exception of a short interval, I have never been engaged in agriculture.

From observations, however, made at the time, particularly in the case of my "bush road" wheat, and that of my pasture field, I thought I had discovered a tendency in chess to become perennial, and determined to put it to the test by sowing a field of wheat, and then by pasturing and mowing it a succession of years, reduce it, if possible, to its original state of grass, and having accomplished this, then to force it up again by cultivation through all its changes to its ultimate wheat. Fearing that my experiment might fail if carried on in an open cultivated field, I had intended to have enclosed a piece of low, well-shaded forest land, and pursued the same course with it, but as stated above, my experiments were brought to an end; nevertheless from facts collected from observant and reliable farmers, added to my own experience, I have been led irresistibly to believe that neither wheat nor any of our cereals are *indigenous* in any part of the world, but that they all owe their discovery to the cultivation of grasses for food for animals, and if left uncultivated, they will either perish entirely or return to their normal condition, and further, that there are grasses native to this country, to say nothing of others, which, if pushed by cultivation to their ultimate issues, could be made to yield new and valuable additions to our present list of cereals. J. HUNTER SEARS.

Brantford, Nov. 14, 1864.

Native Flax.—The territorial papers tell of an indigenous flax discovered on the hills of Carson valley, in great abundance. The stalks are upwards of three feet in length, are of very fine and strong fibre, and grow in bunches of from forty to fifty in a single root. It is thought a good business could be made in gathering it for the manufacture of bale and windlass rope.—*N. Y. Economist.*