Experiments go to prove that sufficient water does not fall as rain to supply the requirements of the plants, and also that the evaporation from a soil hard and compact is much greater than from one which is cultivated, therefore the great need of stirring the soil so that the plants may take advantage of the natural soil water is readily seen, for in time of drought cultivation often means just the difference between success and failure.

Fences and Farm Economy

(Concluded).

BY W. A. HALE.

Wherever the law is in force for preventing the straying of animals on highways and public places, an opportunity is thus given for commencing the economy in fencing, by first abolishing those along our roadsides. I have often been asked, "How are crops to be protected from passing droves and stray animals?" The answer is, simply by keeping the droves moving, and by preventing animals from roaming at large. I live on one of the old thoroughfares along which a very large proportion of the cattle and sheep designed for the New England markets pass. Many years ago, when roadside fences were still considered necessary, I cleaned up both sides of the road for the double purpose of keeping down weeds and for making hay, and thus prepared a most tempting feeding ground for all these numerous flocks and herds; and while these animals were by permission of the drovers regaling themselves on the roadsides, large portions of them often found their way through open gates or weak places in the fence, so that not only did I lose the best part of my two tons of roadside hay, but a deal of my meadows and grain fields was trampled over as well. In order to try and prevent this latter loss, I some years ago took down in spring about 2,000 feet of roadside fence with the intention of replacing it with a new one. On reckoning up the cost, I found that with posts and boards, etc., the total cost would be at least $100. Charging interest on this at 7 per cent., and allowing 8 per cent. more for annual repairs and depreciation of fence, it would represent $15 a year, and with the extra labour caused by the fence in ploughing, mowing and raking by hand, in driving round to and opening gates, and in extra road work in winter from drifts caused by this fence, say $10 a year more, or $25 in all. I found that the annual tax of this fence would be equal to the total loss of five tons of standing hay in this field alone, while practically I have lost none at all, and have had a full crop of uninjured roadside hay as well. Since then, 1,000 feet more have been removed, and as time allows all the rest will follow, and it is very satisfactory to notice that this custom is steadily spreading in every direction. To those who prefer to fence their roadsides in order that their cattle may run upon the aftergrass, I would suggest that, if feed in the pastures is short in the autumn, it would be far better, for many reasons, to either grow green corn fodder to take its place, or with the money saved from the cost of fencing to buy and feed bran, than it would to injure the meadows by pasturing them. But if the roadside fences are an unnecessary nuisance, the boundary line fences are in many cases worse. As the law exists in Canada to-day, any man can compel the owners of all the adjoining properties to build half the dividing fences, whether the adjoining lands be in timber, in wood, or what are generally known as unimproved lands. In the United States this condition of things is very properly not allowed, and in most of the States the law goes more fully into the matter, and, being based upon the fundamental principle of all just herding laws, provides that every man must keep his animals upon his own land, and in whatever way suits him best, so long as he does not impose upon any one else in doing so. Taking example from these older sections of the country which have evolved a much more equitable code of farm laws than exists with us, a movement has been set on foot, based upon these improved laws, and the attention of the Quebec Legislature is now being called to the importance of modifying the present existing and unsatisfactory laws. As the boundary fence law at present exists, it is imperative upon each to build and maintain, under the direction of the rural inspector, one half of all the fences bounding his property, whether they are of any benefit to him or not. This, in the old days when land, labor and lumber were of very little value, may have been a rough and ready cross-cut way of settling the matter; but as civilization has brought about a different condition of things, it does seem as though a modification of these old customs should now be made more in accordance with the advanced state of agriculture, and in such a way that any man may, if he so wish, relieve himself of an extravagant and often wholly useless burden, greater in actual annual cost than all his yearly taxes, yes, and probably his insurance as well.

This proposed addition to the fence laws is not intended as an amendment to those already in force, for, in all cases where two neighbours find that they both wish to make use of a boundary fence, the present laws and customs would be their guide: but, where a desire to economize exists on the part of one or both neighbours, then the proposed addition would be made effective. Furthermore, in order to give ample time for considering and testing the merits of the proposed reforms, it is only asked that the new law be made operative in such municipalities as desire to adopt them. The following is the change petitioned for, expressed in two articles:—"The councils of any rural municipality may, by by-law or resolution, bring into force article 426 *b*. of the code; the said article shall only have effect from the first day of November next following the passing of the said by-law or resolution:—"

"426 *b*. The owner or occupant of land, adjoining all timber lands, wild lands, wood lots, unimproved lands and that part of farm lands on which horses, cattle, sheep, swine, goats, poultry, or any domestic animals are not at any time allowed to pasture, or run at large, cannot compel the owner or occupant of such unpastured lands to build nor maintain any part of a boundary fence adjoining such lands. The owner of improved farm lands adjoining land of another, having erected at his own expense, or become possessed of a boundary fence, may, by appealing to the rural inspector of his division, demand and recover from the owner or occupant of such adjoining land, the present value of one half of the amount of the boundary fence so used whenever such adjoining owner or occupant begins to make use of said boundary fence by pasturing any domestic animal or animals upon the land bounded by such fence, whether it be in pasture, meadow, stubble or ordinary farm land, said value to constitute a purchase of that portion of the boundary fence, and which is in future to be maintained by the party so purchasing.

In cases where a boundary fence has already been built, if the owner or occupant on either side ceases to use his land as pasture at all times of the year, or if his land be timber land, wild land, wood land, or unimproved land, he can no longer be compelled to maintain any portion of such boundary fence, but may, by giving notice in writing to his neighbour before the first day of December in any year, remove on or after the first day of June following, whatever part of the fence had been allotted to him, and be exempt from maintaining the same, so long as his land adjacent to said fence is not used for pasturing purposes; first, however, giving his neighbour the right to purchase this said portion of the boundary fence, at a fair valuation; the price, in case of disagreement, to be decided by the rural inspector of his division."

These laws, should they come into force, would, I am convinced, be the means in many cases of bringing about an enormous saving without in any case causing an injustice to any one.

Chess.

In regard to the chess and wheat question, I am going to give you some hard nuts to crack. In the first place, I say that wheat *will turn to chess*, and more so, I can prove it. When I was a boy, about forty-five years ago, we moved to the township of Maryborough, in the county of Wellington, before that township was surveyed. We made a little clearing the first year. The next year some families began to move in, and among them the family of Thibadoes, a Frenchman, took up land about a mile from us. They cleared a small patch, about three acres, as near as I can tell, and sowed it with fall wheat. What was the result? It was over half chess. Where did it come from, if it did not come from damaged wheat?

Next place, Mr. Edward Braidy, of the tenth concession of Maryborough, some years ago sowed a field of fall wheat on low land. It got frozen out badly. What was the result? It was ten bushels of chess to one of wheat.

Third and lastly, right here in Dorchester, my neighbour, Mr. McGregor, some years ago sowed a field of spring wheat in front of his house, about one acre, but he had not seed enough to finish, and completed sowing the field with fall wheat. It was a piece about thirty feet wide, by one hundred feet long. It came up all right, but it all turned red in the summer. The spring wheat was a fine crop. He seeded it down to grass. I said to him one day, "Where is the fall wheat you sowed?" "Why, it is there," he said, "but it don't grow." The next summer I was out there just before haying, and went through the field. The part sowed to fall wheat was all chess, except one small bunch that had three heads of wheat. Where did the wheat go to, if it did not turn to chess?

Can prove this; if you think not, write H. G. McGregor, Belmont, Ont., and he will tell you the same story. Chess is nothing more than damaged wheat. Some years it is worse than others.

Yours truly, JOHN HOLBORN, Belmont, Ont.

ANSWERED BY JAMES FLETCHER, ENTOMOLOGIST AND BOTANIST, DEPARTMENT OF AGRICULTURE, OTTAWA.

In reply to Mr. Holborn's letter, with regard to chess, I can only answer his positive statement "that wheat will turn to chess," by referring him to my last annual report, page 165. The examples which he gives to prove his contention, to my mind prove nothing. I shall be glad to send him, if he wishes it, seeds of chess to experiment with. He probably has fall wheat seed, and if he will pick out one hundred grains and sow them this fall, and mark each grain where and when sowed, he will find none will produce chess. I have only to repeat that if clean seed be sowed, no chess will result. I do not think it worth while to take up more of your space with this matter, but shall be pleased to correspond at any length with Mr. Holborn, and also to try any experiments he may suggest.

Wheat Shrinkage.

According to the Ohio Experiment Station, in a test made with stored wheat it was found that when grain is threshed dry from the field the loss in weight by storage is only 2¼ per cent. on the average. The last weighing was made when the grain had been in the bins three years. Another experiment proved that condition of weather affects weight of stored grain. Twenty bags of dry wheat were put in a bin in January, 1892, and left through the extraordinarily wet spring and early summer that followed, being re-weighed in July. It was found that the aggregate weight of the 20 bags was a few pounds greater than when stored.

Notes from England.

After one of the driest springs since the beginning of the century, the parched fields and pastures have been refreshed by a more or less copious rainfall. The first cut of meadow hay may be said to be entirely destroyed, but a good single cut, which will not be ready much before the second crop usually is, may be obtained. The rain has come too late to insure a good crop of clover, though the bulk of the crop will be considerably increased.

We must hope for a good aftermath, which can be made into hay or silage—the former from choice, as "hay will be hay" this season. Prices have advanced and are likely to go much higher, so that there will doubtless be a considerable profit made by exporters in sending bailed hay to this country.

The British Board of Agriculture have published the agricultural produce statistics of Great Britain for the past year. We notice that with the exception of oats and turnips the estimated total produce of every crop has fallen below the estimate for 1891. Hay is only estimated at 11,500,000 tons while even the bad year of 1891 the yield exceeded 12,500,000 tons. This reduction is due partly to the unfavorable weather, and also to the serious damage by blights, mildews and rusts.

The farmers and stock owners have presented a petition to the salemasters of Scotland, showing that the selling of cattle and other live stock by weight is the fairest method, and urging its adoption upon the dealers. They also ask for a sworn weigher to be appointed at each market, and that the weight be marked on a blackboard which will be visible to the buyers and sellers during the bidding.

A very serious outbreak of cattle plague has occurred over the Russian Steppes, stretching as far as the Caucasus. Regulations have been issued for the compulsory slaughter of diseased animals, and also of all animals in contact with those diseased. Owners will receive compensation for all animals killed.

Readers of English papers on your side of the Atlantic will regret to hear of the death of the Rev. Geo. Gilbert. He was a well-known contributor to a number of our agricultural papers.

Since the introduction of Indian rubber tires on the wheels of hansom cabs, on the streets of London, there have been so many accidents to pedestrians that the police have refused to license any cabs of this description unless they have bells attached to the harness or some part of the cab to give notice of their approach to the unwary foot-passenger.

The result of an experiment made by Dr. Royer upon the influence of sugar in the constitution of butter, by the addition of sugar in a ration of dairy cows, is found to be that it lowers the point of fusion of the butter. The action of the sugar is equally felt at the point of fusion of the fixed fatty fluids.

At a meeting of French agriculturists during the late Paris Cattle Show, a paper was read on animal tuberculosis, in which the statement was made that ten per cent. of the cattle suffered from this disease. They have a sure method of diagnosing tuberculosis even at its inception, by the employment of tuberculine. When injected into animals suffering from this disease it immediately raises the temperature of animals which had previously showed no signs of the disease. By this means the healthy animals could be separated from the diseased. A number of breeders have already tried this method, and report satisfactory results.

It will be interesting to many to learn how things were managed in the good old times. 1697 was a year of great depression, and many farmers were ruined. Whereupon Her Most Gracious Majesty Queen Bess did make an ordinance respecting the London companies who dealt with farm produce. And Billingsley, Lord Mayor of London, thus proclaimed on April 19th, in the 29th year of Elizabeth:—Item, this daye, accordyng to Her Majesty's commandment, signified to my Lord Mayor by the letters of the Right Honorable the Lords of H. M. Privey Councell, purporting that during this summer seazon, in respecte of the presente scarsity and dearth all the severall companys of this citty do from hensforth forbeare to make anye ffeasts in their halls or elsewhere for the avoiding of cousumcion of vitualls; and that one half of the charge—intended to be spent in such feasts—shall be paid in money, by such persons as are to be at charge, to ye handes of Thomas Ward and Richard Wright, collectors. And the same moneys so collected shall be from tyme to tyme employed by them toward the relief of ye pore." That is a livelier method of helping distressed agriculture than is the appointing a Royal Commission.

An interesting example of electricity as applied to farm work has been in operation for some time at Ardwell, Wigtownshire. The whole of the usual farm machiney—such as threshing, sawing, corn-crushing, and the like—is here driven by an electric motor. The electricity is generated by water-power, the turbine wheel which drives the dynamo being about a thousand yards from the farm. The electric current is conveyed by wires to the house and farm, in each of which a storage battery is placed. These supply the electric current for lighting and motive purposes when the machinery is not working. The whole of the mansion-house is lit with the electric light, and an electric motor is provided for pumping water for domestic purposes.