however, burned perfectly well throughout the day. To burn 10lbs. of wood in 2½ hours would require 8,000 cubic feet of air, and this would have to traverse 108,000 lbs. of soil before it could reach the furnace. A similar circulation, though less active, must take place whenever there is a difference in the temperature of the air in the drains and that of the atmosphere, and from observations that have been made it has been found that a difference of this kind take place at least once in twenty-four hours. M. Jæger remarks that wherever a furnace exists, its fire may be usefully employed in fertilizing, by means of air tubes, the adjoining grounds; and that gardeners might thus make good use of their hot-house furnaces, for improving borders and other parts of their gardens.

The advantageous action of the atmospheric air in passing through the soil is said to be due to the fact of its losing a portion of its oxygen, and thus giving rise to the formation of a larger portion of carbonic acid. To determine the changes effected in these respects, Messrs. Fichner analysed the air contained in the tubes comparatively with that of the atmosphere. They found, after several days' uninterrupted heating by the furnace, during which time the circulation through the soil had been rapid, the air in the tubes had exactly the same composition as that of the atmosphere (21 per cent. of oxygen and 79 of nitrogen), and contained in 10,000 parts 12·80 of carbonic acid. Two days after the fire was not kept up the air in the tubes had only 20·85 per cent. of oxygen, and contained 20·99 of carbonic acid in 1,000 parts; and from four to six days after the fire was let out, they found 20·71 of oxygen and 35·72 of carbonic acid; six or eight days after, 20·08 per cent. of oxygen, and 35·73, per 1,000, of carbonic acid. During these experiments they only found four parts of carbonic acid in 1,000 of the air in the atmosphere.

We offer the above to the consideration of our readers, as involving matters of much curious interest, that may some day receive a more general and satisfactory application. As far as experiments have yet gone, there is sufficient ground for believing that the system is attended by very marked results. This has been particularly the case in Hungary, in the culture of sugar beet and other root crops. Like all practical questions, it will ultimately resolve itself into one of expense. In our judgment the practice of draining by means of pipes might be also made the means of aerating the soil to a much greater extent than obtains at present. This might in a great degree be accomplished by arranging the upper end of the drain so that atmospheric air could have free access to them, and thus a constant circulation kept up, when the drain was not full of water, which is seldom the case. The air would penetrate the soil through the joints of the pipes, for where water can flow, air will follow. We remember some years ago leaving the upper ends of half a dozen drains in the centre of a field open to the access of the atmosphere, not indeed for the purpose of aeration, but for local reasons. There was a marked difference between that and other portions of the same field in which the lower end only of the drains was left open. In spring the ground was drier at an earlier period over the ventilating drains, as well as moister during the drouth of summer. There is evidently much yet to be accomplished in this important section of the wide field of agricultural science and improvement.

Canadian Produce at the Dublin Exhibition.

In an editorial, on the agricultural aspects of the Dublin Exhibition, the *Mark Lane Express* has the following pertinent remarks in reference to the Canadian grain shown there, and the system of tillage by which it is produced:—"Canada has a very fine display of agricultural produce, contributed by the Boards of Agriculture of Upper and Lower Canada and by private individuals. The samples of wheat, oats, Indian corn, and other grain are very fine. The quantity of grain produced by Canada annually, seems almost fabulous. Of wheat, last year, over 25 million bushels were grown, of peas 12 million, of oats 10 million, and of buckwheat 13 million bushels.

"The tenacious blue-clay lands, which form the principal feature of Lower Canada, constitute a strong and rich soil, bearing in abundance crops of all kinds, but particularly well adapted for wheat, and were in former times noted for their great productiveness. These lands have been for a long time under cultivation, and by repeated cropping with wheat, without fallow, rotation, deep-ploughing or manure, are now, in a great many cases, unproductive, and are looked upon as worn out or exhausted. A scientific system of culture, which should make use of deep or subsoil ploughing, a proper rotation of crops, and a judicious application of manures, would soon, however, restore these lands to their original fertility. The few trials which, within the last few years, have been made in the vicinity of Montreal and elsewhere have sufficed to show that an enlightened system of tillage, with subsoil draining, is eminently successful in restoring these lands, which offer at their present prices good inducements to skilled farmers. Besides grain and green crops, these soils are well fitted for the culture of tobacco, which is grown to some extent in the vicinity of Montreal. Notwithstanding the length of the winter season in Canada, the great heat and light of the summer, and the clearness of the atmosphere, enable vegetation to make very rapid progress."

The following statements of our contemporary, as to the condition of Agriculture in Upper Canada, indicate the prevalance of juster views about us than have sometimes found utterance in Britain, and will be heartily appreciated by our farming friends:—

"In no part of the Province, however, have skilled labour and capital been so extensively applied to agriculture as in Western Canada, and the result is seen in a general high degree of cultivation, and in the great quantities of wheat and other grain which the region annually furnishes for exportation, as well as in the excellent grazing farms, and the quantity and quality of the dairy produce which the region affords. This Western portion of the Province, from its more Southern latitude, and from the proximity of the great lakes, enjoys a much milder climate than the other parts of Canada. The winters are comparatively short, and in the more Southern sections the peach is successfully cultivated, and the chesnut grows spontaneously."

The Season.

THE weather, since our last issue, has continued in the main favourable to the growing crops. Apprehensions of damage from drouth were entertained, but the late copious showers have happily dissipated these fears. Unlike the warm sunshine which followed the previous rain, the temperature, at present, is somewhat chilly and unpleasant.

We regret to state that the vague, prophetic surmises and uncertain rumours respecting the appearance of the midge, which were current a fortnight since, have now assumed the shape of indisputable facts. Reports from all sections of the country, however they may differ as to the probable extent of the injury done, are alarmingly unanimous in testifying of the presence of the insect in vast numbers. There is, however, some ground for future encouragement in the circumstance, that the "midge-proof" wheat promises well the present season, and appears in the majority of cases at least, to be what its name implies. A city contemporary, however, reports that on some of the best cultivated farms in this neighbourhood it has signally failed. How far this may be correct, we have no means of determining; but the evidence from some quarters in favour of its imperviousness to the little pest seems very conclusive, as the following extract of a letter from Messrs. Gooderham & Worts, recently published in the *Globe*, will show:—

"Enclosed please find a sample of midge-proof wheat, imported from the State of New York by Messrs. Gooderham & Worts and Mr. H. S. Howland, and now growing on the Meadowvale Farm, belonging to the former gentlemen. There are thousands of midges hovering amongst the straw and trying to work it to the grain, but to no purpose. We have examined the field carefully and cannot find a grain injured.

"Enclosed, also, are two samples from the farm of Wm. Elliott, Esq., adjoining the Meadowvale Farm. One is the midge-proof and is perfectly safe; the other is the Soules wheat, planted one week earlier on the same land with nothing but the fence between, and it is almost totally destroyed by the midge. In this neighbourhood this is about the result generally."

A trustworthy correspondent writing from West Oxford, bears further testimony to the same effect. He says:—"The 'midge-proof' wheat was in ear by the 4th of June. On the 10th it was in bloom, and myriads of the midge were amongst it. To-day (June 26th), it is past all danger, and in two weeks, I think, it will be in shock. Closely adjoining it is a strip of red Essex, and next again the Soules wheat, both of which varieties are now in bloom, and the chaff of almost every grain is pierced. On minutely examining the 'midge-proof,' from day to day, I have never discovered a single larva." This being the case, we trust the "midge-proof" wheat will be largely sown next year. Although inferior in quality to fall wheat, yet its yield is prolific,—40 bushels per acre being frequently harvested.

Flax, Barley, Rye, Oats, Potatoes, and other root crops, are making the most gratifying progress. Haying has commenced and will be general in a few days. The hay crop is unusually good, indeed in some sections the grass is reported to be so thick on the ground, that there is scarcely room to dry it. Fruit prospects are encouraging. The luscious strawberry, with its rich fragrance, conjuring up visions of plates ful, cool and creamy, and ushering in Pomona's happy train, has been very abundant. Pity its season is so brief.

DEATH OF MR. JOSEPH HALL.—With much regret we chronicle the death of this eminent manufacturer of agricultural implements. The sad event occurred at his residence in Rochester, N. Y., on the 7th ult. A month previously he had taken a severe cold which resulted in congestion of the lungs, and the development of heart-disease, under which his system gave way. He was an older man than we had supposed, being at his death 69 years of age. Mr. Hall had been engaged in the manufacture of agricultural implements for some forty years. He was the first to build the thresher and separator. He sent over a large supply of implements from his Rochester works to meet the Canadian demand, which at length became so extensive as to justify the commencement of a manufactory on this side of the lines. Oshawa was chosen as the location for it, and from moderate beginnings, it has grown to be the largest and best appointed implement shop in the country. We are glad to find that Mr. F. W. Glen, who has for some years most efficiently superintended the business at Oshawa, will continue to carry it on, and we bespeak for him a continuance of the confidence and patronage he has so well earned at the hands of the agricultural community.

DECEASE OF SIR JOSEPH PAXTON.—The *Asia* brought intelligence of the death of this distinguished architect and horticulturist. His abilities were first recognised in the superintendence of the Duke of Devonshire's great works at Chatsworth, and his achievements on that magnificent estate soon opened his way to a larger field of operations. He designed the Crystal Palace for the World's Exhibition, in 1851, and the building was put up under his superintendence. This public service brought him the honours of knighthood. He constructed the beautiful Palace at Sydenham, and laid out the adjacent grounds. He was elected two or three times to the House of Commons, and at the period of his death was sixty-two years of age.