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that of capillarity, and the water will not rise—a proper mechanical texture must therefore exist in the particles of soil; (2) the drain should be so regulated with regard to depth that the underground water below the influence of the drain will easily rise to the feeding roots, evaporation being prevented as much as possible. This motion of water always plays an important part in relation to fertility. Soluble matters of the soil, or of the manures, are carried up with the water to the roots of the growing crop, the water therefore acting as a distributor of plant food, and making it accessible to all parts of the roots.

Frosts and Floods in Relation to Drainage.—Having presented the main advantages of drainage, we shall now consider a few objections that have been raised. We have already explained the danger of loss of nitric acid and how to prevent it. Objections have also been raised on account of frosts and floods.

It has been said that frost penetrates the soil so deeply in drained land that considerable time is wasted during the spring months in thawing the mass of ice. In answer to this we cannot do better than to quote the words of so able an authority as Mr. J. J. W. Billingsley, of "The Drainage and Farm Journal," published in Indianapolis, Ind. He says:

"The water of saturation for the most part is removed as it falls, passing down to the drains and away, leaving only the water of moisture to freeze, which admits of being frozen deeper, but at the same time it is open and porous, and as soon as the surface of the ground begins to thaw, the water enters readily into the frozen, porous earth, thus thawing out sooner than where both the water of saturation and the earth are frozen into a solid mass. The disintegration or separation of the soil particles is quite as complete for the reason that the spaces between the particles of soil not being filled with water, admit of a ready separation, which also accounts for the deeper freezing. This is not only true in theory but also in practice, and will be verified by all farmers who have experience in tile drains."

Another grain of common-sense will also dispel the illusion with regard to floods. It is true that open drains, sluices, etc., may materially assist the overflowing of lands where the waters collect, to the detriment of riparian proprietors, especially in the open drainage of swamps; but it may be argued that a pound of ague is worse than a ton of flood. With regard to tile drains, however, the effect is the reverse. Drained soils hold immense quantities of water, which, in undrained land, would wash over the surface and produce floods. Prof. Kedzie estimated that dry sand will absorb one-fourth of its volume of water, and a depth of three feet will hold nine inches of rainfall. A like depth of mould will hold five inches. Moreover, the water of saturation—that contained between the particles of soil—does not begin to flow through tile drains until after 12 to 24 hours after the shower ceases, and then does not reach its destination until the floods caused by surface washing begin to subside. The greater the rainfalls and the older the drains, the more water will the soil hold. Tile drainage is therefore a preventative of floods.

The most practical benefit which all these drainage operations produce consists in the deepening of the soil for the expansion of the growing roots. The soil, being finely pulver-

ized, contracts, the particles come into closer contact with the roots, and the greater the area of contact, the greater will be the supply of nutriment. All these advantages which we have claimed for drainage are quite consistent with practical experience; for scores of farmers have informed us that drains paid their bill of costs the first year, when constructed on the best recognized principles. If so, what must be the profit say in the fourth or fifth year, when the drains begin to get into first class running order? How miscalculating a farmer must be in continuing year after year to draw the scanty fertility from a mere shell of surface soil, when the inexhaustible resources several feet below can be so easily and cheaply obtained! When will he be convinced that it is vastly more profitable to spend his hundreds of dollars in deepening his acres than his thousands in purchasing the farms of his neighbors?

Agricultural Depression in Britain.

[FROM OUR LIVERPOOL CORRESPONDENT.]

The depression in every branch of industry in Great Britain still prevails. Indeed, in this month of October it is worse than it has been known to be during the bad times since 1876, when the stagnation began. A critical winter is before the people. A general election, under the new and more extended franchise, is about to take place, and that event keeps up a good deal of excitement. Added to that, strikes abound in many of the centres of manufacture, owing to attempts to reduce wages to enable employers to meet lower prices. The condition of agriculture is simply deplorable. An agitation is going on for the creation of small farms of from three to ten acres each, and to establish the laborers thereon. Men of experience know very well that such a scheme cannot succeed, whilst large capitalists are unable to make their farms pay whilst wheat is at 32s. per quarter, and the prices of cattle and sheep are ruinously low. Under these circumstances there need be no wonder that the National Fair Trade League, which demands an import duty on foreign corn and live and dead meat, should be making progress. By such a change of fiscal policy it is contended that the heavy taxation on British agriculture, both imperial and local, might be considerably reduced. A new paper in London has just been started to advocate these alterations, with a view of giving colonial producers advantage over foreigners who, by high tariffs, shut out British goods from their markets.

The cattle and sheep trades are exceedingly flat. The masses have not the purchasing power which they formerly possessed, consequently there is but a very limited demand, even at the lowest prices. As already observed, the distress which has for a long time exhibited itself in the manufacturing districts, has now extended itself to the railway interests. Wages are being cut down and the time of employment shortened, thus aggravating the misery and distress which already so widely prevailed. The London and North-Western Railway Company have given notice to their men that they will make a reduction in the time of labor of one day per week, and this course is to be followed by several of the leading carrying companies in the three kingdoms.

As an evidence of the extreme depression it may be remarked that, for the first time, sheep from the south of England have been sent to the Lancashire markets. The consequences may be readily imagined when these sheep strike at the already over-gloated Irish and Scotch importations. At the leading sheep sales in the north, the depression is shown in all classes of sheep by a depreciation in value to the extent of at least thirty per cent. on last year's prices, whilst at the large sheep sales held in Germany, last year's lambs have had to be sold at a clear loss of 2s. to 3s. per head, after sinking the whole year's keep.

With comparatively good seasons it is remarkable that the depression in British agriculture should be so intense as it undoubtedly is. It is anticipated that with the crushing drop in prices of cattle and sheep, a number of struggling men, who have so far managed to keep above water during the bad times, must now go under. In regard to live stock the shortness of winter keep will necessitate the sale of animals either as stores or half fat, which under happier circumstances might have been wintered. Consequently, we find meat markets overdone with a lot of half-fat or store animals, for which there is little or no demand. Those who must sell have to take a ruinous price; whereas, if these animals could have been kept until really fit to come out next spring, they might have made prices which would have left some profit. It is expected that meat of all kinds will be dearer next spring owing to the difficulty of winter feeding.

At the great Southdown sheep fair held at Lewes in the last week of September, prices were lower than they have been since 1869, when sheep sold at 24s. to 48s., and lambs at 18s. to 30s., as compared with 25s. to 51s., and 15s. to 35s. this year. Last year the quotations were 36s. to 61s. for sheep, and 19s. to 44s. for lambs; and in 1883, 43s. to 64s., and 24s. to 48s. For larger varieties of sheep the fall is greater. A well known Hampshire breeder has stated that draft ewes in that county are worth barely half as much as they were two years ago, and that lambs which would have been worth 52s. in 1883, have this year been sold at 26s.

As Canadian readers will be aware, the Dominion had an extraordinary exhibit of manufactures and other goods at Antwerp, and this is having a most beneficial effect. It is to be hoped that the interests of everyone connected with the Dominion will be well represented at the London exhibition. During the last few days of the Antwerp show a magnificent exhibit of fruit was made. The pears and peaches were remarkably good, but the apples would have been considered decidedly inferior at any one of the Western Ontario exhibitions. A visitor noticed a large number of apples well known in Canada—Spitzenburgs, Greenings and Fameuse—but these had certainly not improved by being transplanted to Dutch, Belgian and French soils. As a matter of fact, Canadian apples, if properly shipped, cannot be excelled by any country in Europe. The show at Antwerp, the first in Europe of the kind, fully demonstrated this.

There are \$20,000,000 spent annually in the United States for commercial fertilizers.