

"The carpet of flowers" says Humbolt, "and of verdure spread over the naked court of our planet is unequally woven; it is thicker where the sun rises high in the now cloudless heavens, and thinner towards the poles, in the less happy climes where returning frosts often destroy the opening buds of spring, or the ripening fruits of autumn. It is under the burning rays of a tropical sun that vegetation displays its most majestic forms." (Aspects of Nature, II. 8-29.) The mechanical state of a soil is important as regards its power of retaining manure. How often do we hear it said that top-dressing is more beneficial than manure ploughed in? It is quite true that the practice is correct on certain light soils, and the reason is not far to seek. As long ago as 1845 (I quote from memory), Professor Way, chemist to the R. A. S. of England, ascertained that sand and gravel only retained the mechanical parts of liquid manure, leaving the soluble parts to pass through with the water unchanged.

An easy experiment will test the truth of this: fill a tube (tin will do if you have not a glass one), open at each end, with clay, and pour into it a solution of ammonia strong enough to be highly pungent to the smell: the first flow of liquid from the lower end will be water absolutely free from ammonia, as your nose will tell you. It will be same with solutions of carbonates of potash and soda, but the smell will not guide you; chemical tests must be employed. Thus, it was found that pure clay would absorb $\frac{1}{2}$ of one per cent. of its weight of ammonia; and that 1000 grains of clay would take up 2 grains of ammonia, and well cultivated clay soils twice as much. If this soil were 10 inches deep, it would retain on one acre 2 tons of ammonia, equal to the contents of at least 14 tons of Guano. So you see that the English practice of a long course, or rotation, on clays, and a short one on sands and gravels, is scientifically correct: in this, as in almost every other customary mode of farming, the practice was in existence long before the theory was heard of.

Again, the proper distribution of manure, and its thorough division, are of great importance. Chemists, however, seem to differ, even now, as to the proper time for its application. We saw that drains would eventually remove the soluble parts of manure after a time. Therefore Lawes would prefer applying nitrogenous dressings in the spring—finding, as he does, a large amount of nitrogen in the test cisterns of his drainage system at Rothamsted, he puts all his artificials containing ammonia on the young grain in spring. But on heavy land, difficult of reduction to a fine tilth, the easiest and least costly mode of preparing for a root crop is to clean the land in the autumn and plough the manure down before winter, the loss of nitrogen is less than the advantage of having a fine surface at an early period of the sowing season; and, as Way says in another passage, "Soils of this sort, (clay) are powerful retainers of manure—the others (sands and gravels) are said not to hold manure". On such soils manures must be applied more frequently, and in smaller quantities than on stiffer soils, where, owing to the retentive quality of the clay, the manure for several crops may be safely deposited at once." So the Kentish rotation on the heavy lands has been (for years before chemists discovered the reason); summer fallow—dunged—for wheat, clover, wheat, oats or peas or barley; and the light land rotation; roots—dunged—barley, clover—dunged on the young seeds in winter or in the autumn after twice mowing for hay—wheat. Four crops for one manuring, in the first case, against the same number of crops, but the dressings divided, in the other. And both systems answer equally well on the several qualities of soil.

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FARMING.

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The Decadence of England!

I have just received the "Agricultural returns" for the harvest of 1880, issued by the Statistical Department of the Board of Trade, England; and thinking that it is full time that those people, who talk about several millions of acres of land in Great Britain having gone out of cultivation, should be brought to book, I have condensed the Board's statement into a form that must be of interest to all my readers who still love their natal soil; showing, as it does that, in England and Scotland at least, progress and prosperity are still the law of the national life.

In Great Britain, the area under cultivation has increased by 126,000 acres since 1873, and the total increase during the decennial period since 1870 is no less than 1,694,000 acres, or more than the whole of the county of Devon. This increase was chiefly won in England, 1,187,000 acres, Scotland 287,000, and 220,000 acres in Wales.

So much for land going out of cultivation! What my clever friends ran their heads up against was, probably, the fact that a great number of acres of coarse clay lands have been laid down to grass, in which state they will be less costly and more remunerative, than when they were growing 18 or 20 bushels of wheat an acre, once in five years. In wheat there were 2,909,000 acres, or 19,000 more than in 1879. Wheat, however is not so favourite a crop as formerly, as the quantity of acres grown this year was 591,000 less than in 1870. The acreage of the barley crop was fully equal to the average of years, and there were 5 0/10 more oats grown than usual.

Taking, then, all the corn crops in a lump, we find that there were 8,876,000 acres sown, or a decrease of rather more than 1 0/10 from the previous year, and of 7 0/10 from the year 1870.

Green crops.—An increase of 10,000 acres in potatoes; and the area, 561,000 acres, is nearly equal to the area of 1870. Turnips, swedes, &c., including cabbages, lucerne, and other forage crops, about 2 0/10 less than in 1879. The whole about the same average as throughout the last ten years.

Clover and grasses laid down for two or three years—rotation grasses as they are called, to distinguish them from permanent meadows or pastures—are about as in 1879; but the land laid down to permanent grass has increased by 260,000 acres, and now equals 45 0/10 of the whole cultivated area of G. B.; having increased by about 2,500,000 acres since 1870. In Scotland, until lately, there was no permanent grass, except a few *parks* round gentlemen's houses, and near towns. *Park*, in England, means an enclosure of from 200 to 1200, or more, acres; in Scotland they are about 4 or 5 acres.

Orchards have increased from 165,000 acres, in 1878, and 175,000, in 1879, to 180,000 in 1880; and market gardens from 41,000 to 44,000 acres. A better sal obtains for vegetables—that is, the poorer inhabitants of the large towns are beginning to eat them. A slight decline in the number of farm horses may be noted; but the stock of horses had increased up to last year, when the numbers were higher than in any year since 1870. Milch cows 1 0/10 fewer in number, but other cattle show an increase of 2 0/10; the number of horned stock in G. B. being, this year, 5,912,000.

Of sheep there appears to have been a loss of 1,000,000 from the terrible attacks of liver-rot last year. There are only 26,619,000 sheep and lambs—not nearly enough, considering the large increase of permanent pasture. Scotland,