

RECENT AGRICULTURAL HISTORY,

[We extract the following description of English Agricultural History, and of the share which the late John C. Grey, of Dilston, had in the promotion of agricultural improvement, from the recently published memoir of Mr. Grey, by his daughter Josephine E. Butler*.]

In my father's account of Northumberland, he indicates the primitive style of husbandry common in the last century. Bits of land were slowly reclaimed, and were applied almost exclusively to the growing of Wheat, which is a crop so exhausting to the soil that after a year or two that locality had to be left to rest for several years, and fresh portions of land subjected to the same exhausting treatment. It somewhat resembled the wasteful ways of the cotton growing slave-owners of the Southern States, who were forced by the conditions of that unnatural engine, slave-labor, to be ever making fresh aggressions upon new lands and to leave once-used lands a wilderness. In some parts of Russia, husbandmen still practice this primitive wastefulness. In this stage of agriculture, manure is not thought of, except as inconvenient refuse, to be got rid of by any means. Thus, on the outskirts of the Roman Campagna, not many years ago, might be seen whole hills of dung carted out to a distance from the city, rotting accumulations from stables and posting-houses, spreading pestilence around; and on the shores of the Wolga there is a similar sight. Dung heaps are brought down by the farmers along the shores, and carted on to the ice when the river is frozen over, and while the winter cold makes it safe to stir up the refuse. When spring comes, the thaw sweeps the whole yearly collection down to the Caspian Sea. The same thing occurred, though on a smaller scale, in England, when the farmers used to make drains to carry down their refuse to some river, or to a pond, which would stand reeking in the sun, and poisoning the neighborhood. The sight of such thriftless expedients always vexed my father, for he knew the worth of that which people were trying to get rid of.

The next stage in agriculture was the simplest form of rotation of crops (a custom, however, as old as Virgil's time), and this sprang from the necessity of growing corn more frequently from the same soil. Farmers could not afford to let the land be idle; and if it could not be granted time to recover itself, means must be found by which it should be restored without delay. The soil must be renewed by giving to it some equivalent for what had been taken out of it. Thus as the wants of the soil, under the pres-

sure of higher cultivation, became greater and more complicated, chemistry came to the rescue. But of that by-and-by. At first it was found that a simple rotation did a good deal. My father said that "the introduction of green crops into Northumberland tillage was the beginning of a new era in the history of agriculture," and it was a very marked era, for with green crops came in the large increase of cattle as agricultural produce.

Before this sheep and cattle were very little cultivated in comparison with wheat. They were generally poor lean beasts, left to wander at will on hill-sides and wastes; not used as agents in the system of rotation; and of course butcher meat was a scarce luxury among the laboring population. But many benefits followed the introduction of green crops. Cattle were kept in greater numbers, and, fed upon the root-crops, were quickly transformed into very profitable beef and mutton, which became cheaper and more attainable by the poor, and this prevented so great a drain upon corn, and so exclusive a subsistence on bread and porridge. But these animals also manured the land, and while feeding upon it enriched it to such a degree that more corn would grow upon the same extent of surface than before. The farmer now took not less but more grain to market than in the days when he cultivated wheat alone. This was profitable both to the producer and consumer. Sheep have been called "the animals with the golden hoofs," not only because of the value of their wool and mutton, but because they enrich the soil they are fed upon more than anything else does. More poor dry land was thus brought by means of alternate crops and eating off with sheep, to yield constant and good returns.

Green crops produce much manure, but they also require much; hence the manure of the towns came to be in great request, and this opened out more practically the connection between agriculture and chemistry. It began to be conceived that that which produces pestilence and fever, which shocks our senses and destroys life, might be used towards the very support of life, and that "our sanitary researches might provide an ample supply of the first requisite of increased production." And, indeed, not long after this was understood, and a hard pressed agricultural community began to see the development of the resources of the land was becoming the grand economical feature of the day,—urged by great necessities into that rank,—we read that some kinds of manure reached "famine prices," so eagerly were they sought, and so hard was it for the supply to keep pace with the demand. Bones and other

portable manures became so much in request that in Sweden it was complained that bones were not to be had by the home-farmer, because of the high price given for them by English importers.

But further wants began to be felt. The great diversity of soils has to be taken into account in the application of fertilising substances, and independently of the geological structure, the physical geography of a district affects the actual chemical composition of the soil, and consequently modifies the chemical treatment of it. A farmer can see with his own eyes that one side of a hill much exposed to rains which wash away part of its saline substances, or to prevailing winds, will yield a different crop from the side which is more sheltered; but he needs science to teach him how to make each side equally develop to the utmost its own capabilities. Thus it was seen that the sciences of geology, mineralogy, botany, and meteorology, were all needful handmaids to agricultural progress. The higher the farming became, and the greater the surface of land reclaimed in elevated districts, the greater became the demand for extraneous and light portable manures, as it was difficult to cart up to high grounds the heavy farmyard refuse. All known manures were first eagerly sought. The refuse of the currier, the maltster, the tanner, the sugar boiler, the glue manufacturer, were all bought up, and every bone mill had its staff of humble scavengers, who sought through all the towns and villages. When these were exhausted we turned to foreign countries. Dealers in foreign manures sprang up in all the seaports. The whole seaboard of Europe was put under requisition. Fleets of merchant ships crossed the Atlantic and brought back their precious cargoes from Buenos Ayres and Monte Video. So great became the demand for these manures that they rose, as I have said, to "famine prices" and and at one time it was only the farmers who lived nearest the seashore who could afford to buy them. Commerce and agriculture worked together, and carried a good influence to distant countries, the inhabitants of which wondered how the refuse of their coasts, and the droppings of the sea birds which whitened their rocks, should be held of such high value in England. This awakened their minds to new ideas, and stimulated them to unwonted industry. In the United States the impulse was especially felt. There are consolatory reflections connected with this subject of manure—not a very dainty subject, perhaps, but one which plays an important part in the world. The rubbish and debris which, when not used rightly, becomes a simple pest, every way disgusting, has asserted for itself its place and use in creation, and has come to be held in esteem! There are regions in

* Not actually cheaper, but relatively so, to the advanced rate of wages received for almost every kind of labor.