

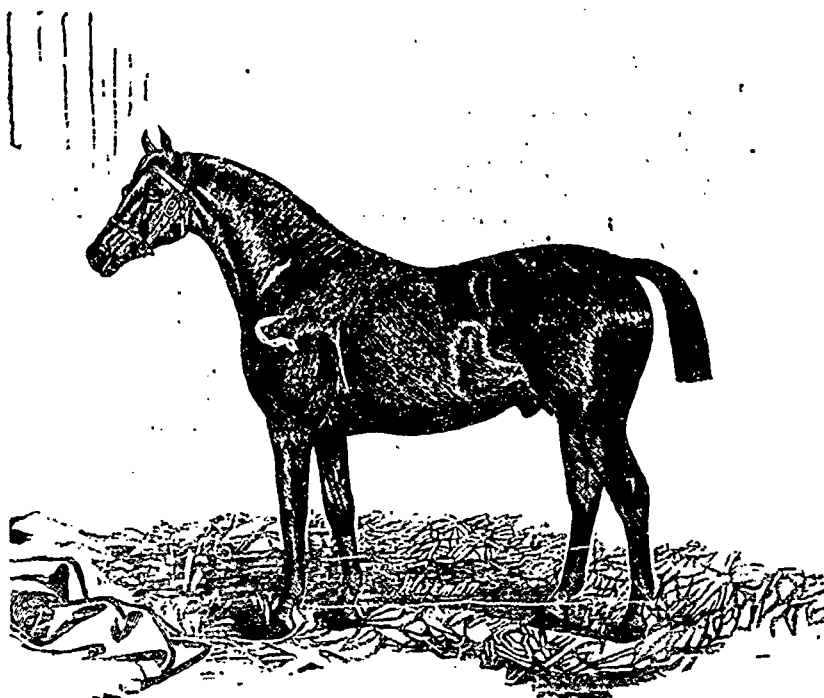
Where the chalk and the green-sand mix, extremely fertile patches of country present themselves. In such a concurrence of soils at Sittingbourne, in Kent, my cousin Colonel John Hart Dyke has 720 acres of land, the average crops of which are, in a good year, 52 bushels of wheat, 68 bushels of barley, 104 bushels of oats,  $4\frac{1}{2}$  tons of clover (twice or thrice cut), and 25 to 30 tons of swedes! Analogically, we may compare the soil at Abbotsford, at the foot of Yamaska mountain, where the debris of the mountain rock mingle with the alluvial soil of the old pelagic valley.

The great misfortune connected with this Woburn farm is that the land has never been sufficiently exhausted by repeated unmanured grain-crops to admit of its showing the real effects of experimental treatment. Up to 50 or 60 years ago, it had always lain in permanent grass, and the accumulated riches of that long rest are not yet exhausted. To give an idea of this it may be mentioned, that the first 9 inches of the soil contain 50 % more nitrogen than does the clay of Sir John

the wheat straw plus the grain is equal to the barley grain plus the straw.

Here we have a reduplication on light land of what Lawes and Gilbert have long ago proved to be the case on heavy land: it is useless to attempt to grow crops of grain without nitrogenous manures. On the plots where mixed mineral manure was used alone—containing potash, soda, magnesia, and superphosphates—the results were just about equal to the unmanured plots, so that, in practice, such a mixture is almost thrown away. But wherever nitrogen—in spite of the immense “natural” richness of the soil in that element—(1) is added in the form of an ammonia salt or of nitrate of soda, the produce is more than doubled, although nitrogen alone does not give a very notable increase.

Well, I suppose the majority of the readers of this periodical are convinced by this time that the experiments they have had put before them are of some value. It will be observed that none, absolutely none, of the parties under whose patronage the experiments at Rothamsted and Woburn have



PRIZE-WINNING ENGLISH THOROUGHBRED STALLION AERIDES.

Lawes' farm at Rothamsted; and this is one of the chief lessons to be learnt from these experiments; namely, that land of such a light sandy texture can permanently retain so much natural fertility. If this farm had been treated as Lawes' farm was, that is, sown with a succession of wheat-crops and turnips, before experiments on the manure requisite for those two crops were begun, the results, valuable enough even now, would be doubled or tripled in their significance.

Here, the unmanured plots give, of course, the least yield, but even in their case the crop is about equal to that generally grown in the district under the usual four-course system. In previous years they have given 17 bushels of wheat per acre, against 37, obtained from nitrate of soda with mixed mineral manure. Of course, the land is, in reality, barley-land, and of this grain it has produced a yearly average of 23 bushels in the unmanured plot, against 55 with nitrate of soda and mixed minerals. Curiously enough, the weight of the entire crop of wheat and of barley is about the same; that is

been carried out have had the slightest connection with the government, but on the contrary, the one is under the sole control and is carried on by the enthusiastic devotion of a private individual, the other by a society composed of all classes of the agricultural population, from the hair to the throne down to the ordinary tenant of 200 acres! A writer in a recently published report states that in Germany and Austria there are 80 government experimental stations, in France 25, and in Belgium 5; while in the United States \$15,000 have been devoted by Congress to each state of the Union for a like purpose. And yet in my own poor land, which, however, is not by any means the most backward of countries as regards its agriculture, nothing of the sort exists! Some trifling aid to a farm-school at Glasnevin and to the dairy-industry in Ireland there is, I believe, and I hear of a grant of the enormous sum of 25,000 dollars for the same purpose in England,

(1) Please observe this very important fact.