In thecase of pasture, too, the produce being consumed on the land, the spontaneous growth of the grass is not found to impoverish the soil, for the yearly decay of a considerable part of the stems and leaves, which takes place upon the surface, has the effect of increasing its fertility, by restoring a greater amount, both of organic and mineral matter, than the crop had taken away. The cultivated plants are much more severe upon the soil. Of these the white crops, such as wheat, oats, &c., are the most severe. They are, no doubt, the most valuable, both as regards their general usefulness and their production of the most human food; but important as they are in this point of view, they are yet to be regarded as the heaviest exhausters of the soil that we have, from the piolonged period that they require to complete their growth; and when we further take into account that usually a considerable part of the straw is sold off the farm, they may be said to exhaust the soil to an extent almost extreme.

The pulse crops, the bean and the pea, bear a resemblance to the white crops, in the effect they produce upon the soil, owing to the same severe demand they make upon it in ripening their seeds; while the straw of these crops, when exhausted of its nutritive matter by the process of maturation, yields but little cattle food, and an inconsiderable return of manure. They differ, however, from the grain crops, in their course of culture being more favourable for the suppression of weeds than the summary mode neces-The bean is a sarily applied to the former. heavy feeder, but it feeds in the subsoil, in a range of matter remote from the surface mould. It is this that makes it so little an exhausting crop; while the falling leaf, the opening of the soil by the penetiation of the taproot downwards, the overshadowing of the land from the heat of summer, and possibly exudation from the plants themselves, seem to have the same effect in checking weeds and generating new carbonaccous matter in the soil which is well known to be exercised by a smothering crop of red clover, or turnips, or rape. It is to these proximate causes that we are to attribute the usual success of employing beans as a forerunner of wheat; for a clean bean stubble, as every farmer knows, is the best possible preparation for a crop of wheat ; and hence, too, the advantage of introducing beans into the rotation instead of red clover, when the latter would to a certainty be a failure. The pulse crops are thus classed with the other general division of the farm produce, termed the white crops. These are a most important order, in their relation to the soil. They may all be said to be calculated, in a more or less degree, to recruit the exhausted powers of the soil, both as regards the ground which produces them and the farm in general. Hence, as a class, they are termed restorative crops. They require a liberal supply of manure. We can hardly erringiving too much; for while a white crop would form a bad description of straw rather are periodically showered down on him; if

than grain, by receiving a direct application of putrescent manure, it is found that a green crop will take up no more than it needs, but leave the romainder to other plants that are to take their place in the rotation. They are sometimes termed fallow crops, from their mode of culture admiting of a complete eradication of weeds and a perfect reduction of the soil-in this way, also, promoting indirectly, but immeasurably, the amelioration of the farm, with every returning cycle of the rotation.

Rye-grass and clover belong to the same class. When cut before they are very ripe, and the greater part consumed by the farm stock, they return fully an equivalent value of manure for the substances they abstract from the soil; but when they are allowed to ripen, and are sold off the land, in that case they become exhausting crops in no ordinary degree. Permanent pasture is not to be considered in the same position as meadow; but when the land has been properly cleaned, and stocked with a suitable mixture of perennial grasses, it is regarded as one of the most efficient means of recruiting the exhausted powers of the soil. Successive strata of new vegetable matter are formed, which become fit for a higher order of plants-thus plainly indicating the tendency to progressive improvement in the order of nature.

(To be continued.)

ON THE ADVANTAGES OF A SANDY SOIL FOR THE PURPOSES OF AGRICULTURE.

BY E. J. LANCE.

Continued from page 133.

I have in my former papers dwelt on the scientific principles of a sandy earth or soil; in this I propose to shew the effect of those principles, when they are correctly applied. On former occasions, successful practices have been pointed out where the arid soil has been made to produce to its uttermost capabilities. It will be seen that local circumstances will have much influence on the capabilities of a district for the production of food for man or the lower animals.

Sandy soils are much more productive in humid situations than in any other; a hill rising above a breadth of water is much more likely to get watered by the dews and fogs than in lower situations; a mountain top is often observed to receive the last kiss of the morning dew, and is moist on the surface when the valley is parching. A canal passing through a dry district has been observed to lose much of its water in a hot day, and the hills near have received a copious dew in the night; thus has Divine Providence contrived a means for watering the most elevated spots, how much then does it behove man to observe her ways, to attend her dictates by opening the surface soil to receive those bounteous gifts in the shape of dews and fogs that