wide cultivation has enabled him to apply to his wheat, no doubt assists in maintaining the stoutness and strength of the plant, as we know it does in Indian corn and other plants of the same family.

Let us now follow the growth of the plant, whose existence we have traced from the parent seed up to the period when, having passed through the earliest stages of its life, and consumed all the food stored up for its use, it enters upon an independent career, and relies upon its own powers for its future support. During the growth of the plant many circumstances have influence over it: the principal of these are in connection with the soil in which it is placed, or the atmosphere which surrounds it. Favorable conditions are readily recognized in the more or less vigorous appearance of the plant; in some cases, however—for instance, where the soil contains a large proportion of available organic matter—the plant starts off with an appearance of growth which it is not able to sustain in its later stages. In others, again, owing probably to a deficiency of soluble silicates in the soil, the straw, though stout and tall, is of too herbaceous a nature, and lacks the rigidity necessary to carry a full head to maturity; and again the produce is unsatisfactory. In both these cases the application of common salt as a top-dressing at the rate of 3 to 5 cwt. per acre, is generally found to be followed by good results.

Again, appearances just opposite to these are to be frequently seen in crops growing even on strong and good wheat soils, especially if the season be a dry one, where a deficiency of organic food for the plant occasions a stunted, though at the same time not an unhealthy growth. This may entirely disappear should the weather change, and furnish a supply of moisture to the soil, which would enable the roots to obtain more readily the needed supplies; but it may be materially improved by the judicious application of some manurial substances, rich in the elements which the plant is supposed to require. Here the good effects of nitrogenized manures are generally seen, guano (Peruvian) and nitrate of soda being those usually applied, at the rate of 2 to 3 cwt. per acre. In all cases, these top-dressings should be applied immediately before or during wet weather, so that they may be acted upon by the rain, and carried at once into the soil.

Frequently, after a mild winter especially, the autumn-sown wheats on good soils present an appearance of luxuriant growth, which is considered to augur badly for the future crop, as rendering the plant more liable to disease, and to suffer from the weather. In this case a practice exists of feeding it off by sheep, and then allowing it to resume its growth. This practice does not appear to make its way as it ought to do; chiefly, I am inclined to think, because where it has been tried unsatisfactorily, the necessary conditions and precautions were not properly observed. It should not be attemped too late in the season, certainly not later than the end of March; the land should be sufficiently dry to carry the sheep, of which a large number should be folded on it at once, so as to get over the surface rapidly. The wheat should be eaten down close to the crown of the root, and not merely its leaves only; and then when the sheep are taken off and vegetation is again unchecked, stems are sent up from each knot of roots formed by the "tillering" process of the plant, and being now of equal growth, present at the time of harvest an equal plant all over the field, with none or few of those short straws with small heads, (tillers), which not only ripen irregularly, but lessen the produce returns of wheat grown under the ordinary conditions.

There can be no doubt that, *cæteris paribus*, autumn-sown wheat is more productive than spring-sown, it being the growth of say ten months (October to August), against six months (February to August). The roots have an opportunity of developing themselves, and penetrating deeper into the soil, by which they are placed in far more favorable conditions as regards mineral food, moisture, and temperature than when they are forced to remain nearer the surface. To compensate for these advantageous natural conditions, spring-sown wheat requires a soil richer in available food, so that it may feed quicker; that it may, indeed, be able, in six months, from a limited depth of soil, to abstract as much food as the autumn-sown obtained from an increased depth of soil in ten months. If this is not provided by the farmer in the superior condition of his land, his returns will not be so productive from his spring as from his autumn wheats, while he must always bear in mind that the former are more liable to be influenced by climatal effects—rain or drought—than the latter.

The vast increase of turnip cultivation during the last twenty years has greatly affected the period of wheat sowing throughout the country. The practice of spring sowing has followed the introduction of turnips, into districts where formerly it was never thought of. In instances where wheat follows turnips fed off on the land a plentiful supply of available food is prepared for the wheat by the preceding crop, while the extra tillage of the turnip crop acts as a good preparation for the wheat

During the period of growth the wheat requires but little attention. Early in the spring some mechanical assistance should be given to the soil, in the shape of rolling or harrowing, in order to compensate for the effects of winter and restore the surface to its proper condition. On certain soils—those containing much clay or lime for instance—the alternate frosts and thaws of winter frequently leave the surface in a very loose and open condition, in many cases, indeed, exposing the roots prejudicially, and in some lifting the plants completely from their bed.