state of matters exists, the best treatment is to leave all the stones which occur in the surface of the field, as they cast shades, and thereby prevent or retard the evaporation of water.

" We will not, however, make any further observations on this very rare case, but will rather proceed to a much more frequent, and in every respect more important, condition of the soil, an excess of water.

" When water is added to perfectly dry soil, it of course in the first instance, fills the interstitial canals, and from these enters the pores of each particle; and, if the supply of water be not too great, the canals speedily become empty, so that the whole of the fluid is taken up by the pores; this, we have already seen, is the healthy condition of the soil. If, however, the supply of water be too great, as in the case when a spring gains admission into the soil, or when the sinking of the fluid through the canals to a sufficient depth below the surface is prevented, it is clear that these also must get filled with water so soon as the pores have become saturated. This, then, is the condition of undrained soil.

" Not only are the pores filled, but the interstitial canals are likewise full, and the consequence is that the whole process of germination and growth of vegetables is materially interfered with. We shall here, therefore, briefly state the injurious effects of an excess of water, for the purpose of impressing more strongly upon your minds the necessity of thorough draining, as the first and most essential step towards the improvement of your soil.

" The first great effect of an excess of water is, that it produces a corresponding diminution of the amount of air beneath the surface, which air is of the greatest possible consequence in the nutrition of plants; in fact, if entirely excluded, germination could not take place, and the seed sown would, of course, either decay or lie dormant.

" Secondly, an excess of water is most hurtful, by reducing considerably the temperature of the soil; this I find by careful experiment to be to the extent of $6\frac{1}{2}$ degrees Fahrenheit in summer, which amount is equiva-