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doctrine and practice of applying special manures. It must be borne in mind, however, that though Liebig is correct, in so far as his experiments were carried, yet his theory is defective in one respect, which has been supplemented by experiments carried on by Messrs. Laws and Gilbert, in which they show that the nitrites, which do not appear in the ash of the plants, are also derived from the soil. These gentlemen have proved somewhat exclusively that plants cannot live on the free nitrogen of the atmosphere, but that it must be obtained from the soil in such compounds as nitric acid and ammonia.

Light is the third great element essential to the existence of vegetation, and like temperature, there are extremes to its healthy stimulus; and it is also observable that the various parts and the several products of vegetation require very different degrees of light for their perfection. The influence of light in the developing, maturing, and coloring of fruit is very great; a fact that should be borne in mind by the fruit grower in trimming his trees and vines, so as to admit as much sunlight as possible to the growing fruit.

The second class of diseases is so uncommon with us that we have little to fear, except from want of proper drainage, in wet or heavy soils. Badly drained land, holding poisonous substances, which must of necessity give to the plant, whether fruit, cereal or vegetable, an imperfect or stinted growth. The remedy, of course, is thorough drainage. As a test, to ascertain what land needs draining, several holes may be dug in the field, say three feet deep, and if water remains in them for some days after a wet spell, the soil needs draining, notwithstanding it may become dry during other parts of the season. The good effects of proper drainage cannot be fully dealt with in this article, but, to simply enumerate some of the results without going into details, it is found that drainage : 1. Deepens the available soil, by removing the surperfluous water from the lower portions, and allowing the roots of plants to penetrate freely. 2. It warms the soil by diminishing evaporation at the surface. 3. It gives the opportunity of early cultivation, and of thoroughly mellowing the soil, which cannot be done if too wet. 4. Plants are better able to withstand a cold winter without freezing out. 5. It guards plants against the evil consequences of drought. 6. It prevents surface washing. 7. The soil is fertilized by the freer action of the atmosphere.