

A FEW REMARKS ON AGRICULTURAL CHEMISTRY.

"People thrashed their corn with fiery flail,
And ploughed with horses harnessed by the tail."

It will be necessary in the course of the present remarks to employ a few technical terms, which might at first appear difficult to some, but the difficulty is only imaginary, and will soon vanish. Every trade and profession, even that of the husbandman has its technical terms, which appear very hard looking to those who hear them for the first time; but these terms do away with the trouble of long descriptions, and, when once acquired, greatly facilitate our progress.

We will endeavour to give an outline of some of the leading principles of agricultural chemistry, and to make use of the most simple and familiar language, so that the subject may be easily understood and remembered. To assist the memory and facilitate reference, the following arrangement will be observed.

I. The food which our crops require for their support.

II The origin and composition of natural soils.

III. The nature and use of artificial soils or manures.

First, then, of the food or materials which our crops require for their support.

It will be evident, that a knowledge of the food which plants require for their growth, and of the essential conditions upon which their life and perfection depend, must be regarded as of the greatest importance to the practical farmer. Agricultural chemistry teaches us, that, for the support of the life of plants—for the growth of the stalk—for the formation and perfect development of the seed—*sixteen* substances are required, and that of these the plant can procure only *four* from the air which surrounds it, and the water it drinks in from the clouds; the remaining *twelve* substances must be procured from the soil in which it grows, or be supplied by the agency of man, when the soil does not contain them.

It was formerly erroneously supposed that the atmosphere, as that immense ocean of air which surrounds us is termed, was a simple element;* but it is now well known that it is most complex in its composition, being a mixture of certain *airs* or *gases*, known among chemists by the names of OXYGEN, NITROGEN, and CARBONIC ACID, and containing diffused through it at all times, a small but essential quantity of AMMONIA,† and a variable proportion of WATERY VAPOUR. The three substances last mentioned, carbonic acid, ammonia, and water, are compound bodies. Carbonic acid being formed by the union of oxygen gas, with a black solid inflammable substance, having the appearance of charcoal, called CARBON; ammonia being a compound of two gases, nitrogen and hydrogen; and water being composed of the latter, and oxygen. It is by the decomposition of these compound bodies that the growing plant

* By the term *element*, chemists understand a simple substance from which no other kind of matter can be procured; thus iron is an element, as we can procure from it nothing but iron, while sulphate of iron (the substance commonly termed green vitriol) is regarded as a compound body, as we are able by chemical processes, to procure from it two kinds of matter, sulphuric acid and iron.

† Ammonia is a kind of air which, when mixed with water, forms the liquid sold under the name of hart-horn: It produces the peculiar pungent smell which we perceive in stale urine, in hot stables, and in the neighborhood of badly kept manure heaps.