and marl. In this condition, it forms a large extent of the solid structure of our globe as limestones of different degrees of purity; it is sometimes associated with magnesia, and this is then called Dolomite, from the name of Dolomieu, who first described it; sometimes we also have with it, in a visible form, mica; and here I must caution those who are but slightly acquainted with chemistry, not to condemn limestones as worthless, which have a large residue after being treated with muriatic or any strong acid. This residue is frequently mica, which contains potash, more valuable by far, than the part soluble in acid. Pure, quick unslaked lime is not an element, but a compound formed of oxygen, a gas, and calcium, a metal; it is therefore the oxyd or rust of a metal; with carbonic acid it becomes the common air-slaked lime; with water it is the hydrate of lime, or water-slaked lime. The quantity of pure lime (oxyd of calcium) in air-slaked lime, is 56.29 per cent.; in water-slaked lime, the quantity of pure lime is about 76 per cent. As lime is that which we wish to buy in lime, its value depends on the quantity of pure lime, or oxyd of calcium in the article which we purchase, and any one can, by the Rule of Three, calculate the quantity of pure lime in air or water-slaked lime, from the above statement. Lime has many appliances, but we shall alone consider it in its references to agriculture.

The history of the use of lime is interesting in many particulars, in none more so than as it affords a convincing proof in itself of the incompetency of experience alone to determine the conditions on which a manure should be used. If the world could, by long acquaintance with and frequent use of a substance, understand the principles which should dictate its employment, lime would have been the agent by which it would have been taught; for no other manure has been used so long, none so extensively, and none with such diverse effects.

Even before the Christian era, Pliny tells us that "Edui et Pictoues agros calce uberrimos fecit"—that the Edui and Picts made their fields very rich by means of lime. Marl was used in great abundance, before the discovery of our country. In the reign of Edward I. and II. of England, the leases have conditions that the tenant should use a particular quantity of marl. In the Forest Charters, as early as the year 1200 A. D., persons were forbidden, unless with certain precautions, to dig marl pits near to the king's highway.

These facts show that the use of burnt lime and marl was well known and practiced long before this time, and well would it have been for succeeding generations, had the composition of the soil, the exact composition of the lime, and marl been known. Had there been recorded facts attendant upon its use—had science raised the veil which covered its mode of action and the philosophy of its use, there would have been no proverb in Scotland, that