

Society started into life there were about four hundred local societies in existence, but they were rather associations for the promotion of eating and drinking than for the promotion of the arts by which the materials for eating and drinking are increased. The speeches were usually complimentary, and the members congratulated one another upon the pre-eminence to which their own enlightened district had attained. They were, in a word, societies for maintaining local darkness instead of for the acquisition of fresh light from enlarged experience.

Having described the important functions discharged by this central Society for the advancement of farming, we proceed to touch upon the particular improvements which have been effected during its career. Attempts to drain have been made from the earliest times. Specimens may be seen of very clever workmanship more than a hundred years old: but the when it should be done, and the why, and the how, had never been reduced to rule. Lord Bacon who had a large collection of works upon agriculture, had them one day piled up in the court-yard and set in fire, for, said he, "In all these books I find no *principles*; they can, therefore, be of no use to any man." This was just the deficiency with respect to drainage, and it could not therefore progress until Josiah Parkes, in 1843, expounded the "*principles*," and in 1845 made suggestions which led to the manufacture of the steel tools which were necessary for forming the deep cuttings, and the cheap pipes which were essential to carrying off the water from them when formed. Up to 1843 little was done beyond tapping springs, or endeavouring to convey away the rain which fell on the surface by drains so shallow that the plough frequently spoiled them, it being the popular belief that moisture would not penetrate through retentive clay beyond twenty or thirty inches. In 1833, when Mr. Parkes was engaged in draining a peat-bog near Bolton, in Lancashire, for Mr. Heathcote, he had an opportunity of seeing the great effect produced by deep cuttings, and he was led to ponder on the advantage that would be derived from relieving the soil of a certain number of inches of the water, which is stagnant during a rainy season and remains until removed by evaporation in a dry season. By experiments continued for several years, he found that a deep drain began to run after wet weather, not from the water above, but from the water rising from the subterranean accumulations below, and that, by drawing away the stagnant moisture from the three or four feet of earth next the surface, it was rendered more friable, easier to work, more penetrable by the rain, which then carried down air and manure, and much warmer and more suitable for the nourishment of the roots of the crops. He came to the conclusion that the shallow draining, advocated by Smith of Deanston, was a vital error, and that four feet, which left a sufficient layer of dry warm surface earth, after allowing for the rise of the moisture by capillary attraction above the water level of the drain, should be the minimum depth.

The first field drained on the four-foot plan was on a farm near Bolton, belonging to a celebrated Lancashire bow-setter. This was a small beginning of the subterranean net-work of pipes which has more than doubled the value of our retentive soils. In 1843 Mr. Parkes gave his evidence before the Agricultural Committee of the House of Lords, and was strongly supported by the Earl of Lonsdale, whose experience as a commissioner of highway trusts had proved to him the advantage of the system. But nothing could be done without tools and pipes. A Birmingham manufacturer, on Mr. Parkes' suggestion, produced in 1844 the set of drain-cutting implements which have by degrees been brought to perfection. A cheap conduit was still a difficulty. Stones choked up in many soils, and where they had to be broken and carted to the ground, often made the cost enormous. In 1843, at the Derby show of the Royal Agricultural Society, John Reade, a gardener by trade, a self-taught mechanic, well-known as the inventor of the stomach-pump, exhibited cylindrical clay-pipes, with which he had