Joseph Elkington

George Elkington is one of the more celebrated of Birmingham's industrial innovators, famous enough to warrant a blue plaque on the front of his old factory in Newhall Street (later the home of the Science Museum). Elkington's pioneering use of electro-plating, and his development of celluloid, placed him in the forefront of technological advances in the mid-19th Century.

What is less well known is that originality was deep in the Elkington genes. Two generations earlier, and in very different circumstances, George's grandfather was marking his own mark in history. There could not be a better link between England's two revolutions - one agricultural and one industrial - than the tale of two Elkingtons.

Joseph Elkington lies buried in the churchyard at Madeley in Staffordshire, where owned (or rented) some 500 acres of land, living at Hey House, until his death in October 1806. But it was in Warwickshire, the county of his birth, that Joseph started his own little revolution.

Joseph Elkington's home territory was at Princethorpe on the Fosse Way, a few miles south of Leamington Spa. It was at the nearby church of Stretton on Dunsmore that he was baptised in 1740, and in its churchyard commemorated by a monument, restored by the Warwickshire Agricultural Society back in the 1960s. "Pioneer of land drainage" the memorial calls him.

Drainage might not look like a crucial element in good husbandry, but ask any farmer - from the 18th Century onwards, if you can find one - and they'll tell you that having just the right amount of water on one's land is vital.

The trouble is that our water sources are not evenly spread or conveniently located. Under the surface of the soil hidden springs and watercourses make their way, bubbling up in some places, diving deep in others. A clay soil only serves to trap the water in great underground reservoirs, spilling out onto the surface. The presence of an underground watercourse can easily turn a field into a boggy morass, unsuitable either for crops or for grazing animals.

Joseph Elkington had a boggy field just like this at Princethorpe, and set about working out how to deal with it. Like all great discoveries, it was really quite simple.

Our account of what Elkington did comes from a report commissioned by Parliament in 1797, some 30 years after the event. To begin with, Elkington dug a trench, some four or five feet deep, alongside the bog, in an effort to detect the source of the water. But the source was clearly much further down than this. Elkington's contemporaries may have done much the same as this, cursed their bad luck and moved on to another field.

Only when Joseph drove a crowbar down into the clay at the bottom of the trench did the water gush forth. And then a drain could be cut to take the

water away.

So Elkington's method was to use boreholes to intercept the source of water. Blindingly simple really, but meriting a gushing tribute from Parliament in 1795, along with a £1,000 award and a gold ring.

Word of Joseph Elkington's divinatory powers over water quickly spread, and he was soon in demand, not only from local farmers knee-deep in mud, but from the gentry too, as they sought to redevelop their estates. And thus a partnership was forged with Lancelot (Capability) Brown, who had much need of one who understood water. Behind every great landscape gardener (especially one intent on creating lakes and redirecting rivers) stands a great drainage engineer.

Their first project together, it would appear, was at Fisherwick Park near Lichfield, an estate owned by the Marquis of Donegall. We may guess that this was the first of many collaborations - perhaps at Croome Park or Weston Park - but the records do not give such information.

It would be easy to underestimate the impact of what Joseph Elkington had achieved. It was not just that he understood the nature of subterranean water, it was that he had a sound grasp of the underlying geology too. It was Elkington's ability to read the local terrain - the complex layers of clay and gravel and sand - that allowed him to pinpoint exactly the right spot to tap off the water.

But at a time when more and more land was being taken into cultivation to feed the country's rapidly growing population, England had much need of a good drainage engineer.

As Elkington perfected his technique, so it became more sophisticated. He began using augers instead of crowbars, and he learnt how to drill sideways into a hillside to tap the water, as well as directly downwards. So successful was Elkington's method that, in draining surplus ground water at Lutterworth, it is said that he managed to empty all the wells in the town at the same time.

All this was set down in the 1797 Parliamentary report, drawn up because of concerns about Elkington's "precarious" state of health. No one wanted the expertise to die with him.

They need not have worried unduly. The engineer from Warwickshire lived for another ten years, moving to Staffordshire in 1797 to farm 500 acres of mainly boggy land (not a problem for Elkington) until his death.

By then the Elkington clan were beginning to switch from farming to industry, and leaving the fields of Staffordshire for the factories of Birmingham.