

RICHARD CLYBURN, AGRICULTURAL ENGINEER, AND THE ULEY CULTIVATOR

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Introduction

This paper is based on an article entitled "Richard Clyburn and His Screw Spanner" by Dennis Chapman which first appeared in *Bulletin* No 75 for August 1997 of the Somerset Industrial Archaeological Society, at pages 2 to 5.

Richard Clyburn, Consulting Engineer

Clyburn's work was the product of a particular engineering culture associated with textile manufacture and high farming in Gloucestershire and Somerset in the second quarter of the 19th century.

Richard Clyburn is first recorded in Gloucestershire in 1828 when he was a consulting engineer. By 1836 he was a partner in the Uley Iron Works with George Lister. In 1841 the Earl of Ducie took over the works and Clyburn became engineering manager until the Duke closed the works in 1847. Until his death he continued to work as a consultant and a designer and traded on his own account.

His work was characterised by its high quality of design, construction, workmanship and finish as attested to by the praise of the judges at the meetings of the Royal Agricultural Society of England. Each implement was made to solve a specific practical problem and, where possible, designed so that its performance could be controlled and measured. Clyburn preferred to use wrought iron rather than cast although in some cases he offered both. His implements were made with replaceable parts, and those made to meet the requirements of the Whitfield Example Farm together formed a system for a productive unit.

Agricultural Engineering in Gloucestershire and Somerset 1825 - 1850

At this time engineering in Gloucestershire and Somerset was on a relatively small scale compared with that of the Midlands, the North of England, the Clyde Valley and the South East of Scotland. In both counties the engineering activities were supported by the landed gentry with a curious result: when the agricultural engineering manufacturers in the United States of America and the rest of the United Kingdom were designing mowing and reaping machines, the industry of the Stroud Valley produced the spiral cutter lawn mower.

Almost all of Clyburn's designs were created at the Uley works but many of them were transferred to Somerset. A few implements were taken up by Ferrabee and the best known of all, the Uley Cultivator, was made by others until the last quarter of the century. In both counties the land owner was important: in Gloucestershire the Earl of Ducie, in Somerset Lord Portman; in both counties their stewards played a critical role - in Gloucestershire John Morton, a distinguished Scottish agriculturalist, in Somerset George Parsons, a leading

English farmer. In both counties there were textile industries which supported local engineering industry: woollen manufacture in the Stroud valley, relatively technically advanced; in Somerset sailcloth-making, technically backward.

In 1838 the Earl of Ducie invited John Morton, a leading agricultural scientist from Ayrshire, to make a complete study of his poorest and worst-managed farm. The "Report on the Present State of Whitfield Farm" was published in 1840 and proposed a six-year plan to create a farm working at the highest level of efficiency and profitability. In his Report John Morton set out his requirements for new machinery. In 1841 'Clyburn and Lister' of Uley became 'The Earl of Ducie's Iron Works' with John Morton as Director and Richard Clyburn as Engineer and Manager. The works immediately began producing the implements required at Whitfield, one of which was the famous 'Uley Cultivator'. In pursuit of the Earl's objectives they began at once to exhibit at the meetings of the Royal Agricultural Society of England beginning with the meeting at Liverpool in 1841.

The Uley Cultivator

The Uley Cultivator is in just one of the examples of Richard Clyburn's work. It produced even rows the depth of which could be regulated by a pointer on a dial plate. His recording drawbar dynamometer measured the load, for example of different ploughs in the same soil, and provided a printout of the result on a continuous strip of paper.

Other Agricultural Machinery

A waterproof oil bath bearing for cart and waggon wheels which he designed was a piece of precision engineering, a complete break with the wheelwright tradition.

The Whitfield Example Farm under John Morton, with the machinery and implements designed by Clyburn and made at Uley, became a highly-mechanised production organisation based on steam power and served by a system of rail tracks. When the Uley works closed Clyburn joined Parsons at West Lambrook where they created an equally advanced mechanised farm. The machinery and implements were made locally. This was the origin of the subsequent career of Parsons as an engineer. John C. Morton in his "Cyclopaedia Of Agriculture", 1856, described and compared the two farms and their equipment; he wrote that there were only two other comparable farms in Britain although a third was being established at Windsor for His Royal Highness the Prince of Wales.

The Screw Spanner

The spanner is the simplest of all the many tools, machines and implements designed by Richard Clyburn but it embodies the essential principles of his engineering skills. It was first made in 1842 and still in production. It was in keeping with Clyburn's attention to detail that even with his wide range of interests he should design a spanner. The first record of Clyburn's spanner is in an account dated November 22nd 1842 from the Earl of Ducie's Iron Works to a Mr. C. C. Clyford. In a list of implements and iron work is the item, "An improved screw spanner £1.5.0.". The price suggests a larger size than those shown later, probably a size 6. In 1844 a set of the spanners was exhibited at the meeting of the Royal Agricultural Society of England at Southampton.

A description of the spanner and how it worked, and its history is most adequately given in “Richard Clyburn and His Screw Spanner” by Dennis Chapman which first appeared in *Bulletin* No 75 for August 1997 of the Somerset Industrial Archaeological Society, at pages 2 to 5.

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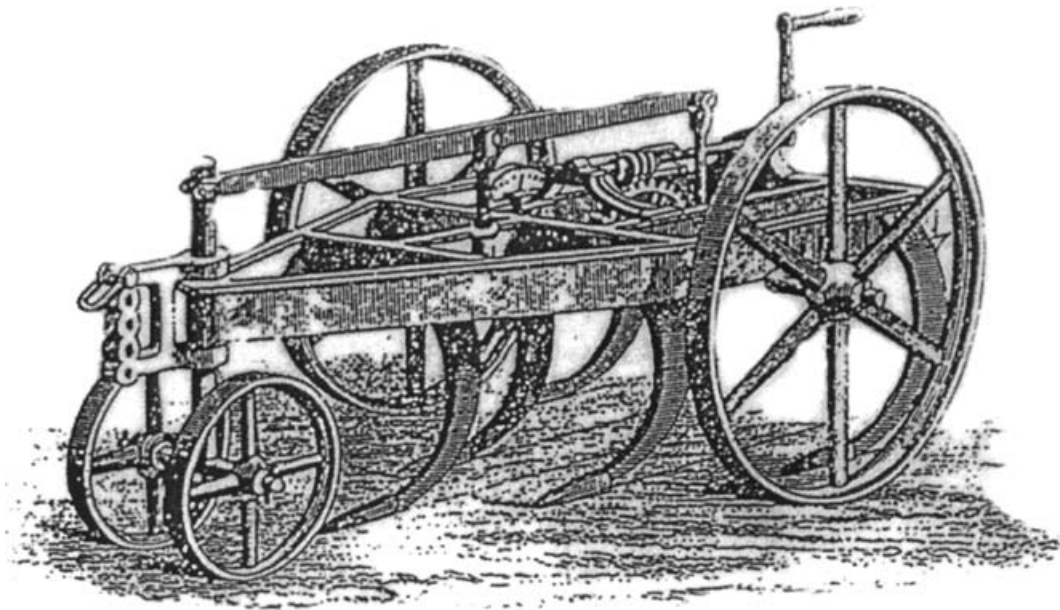


Figure 1 The Uley Cultivator