Dud Dudley’s contribution to metallurgy

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ABSTRACT: Dud Dudley was the illegitimate son of Lord Dudley and managed certain of his ironworks in the early 1620s. He attempted to smelt iron with mineral coal, but this proved to be a failure, commercially at least. After a series of such failures, his father expelled him from his furnace and coalworks in winter 1630-1. Twenty years later while a fugitive, he attempted to smelt lead (not iron) in a ‘belthouse’ near Bristol, and advised others who were attempting to smelt iron with mineral coal. In 1665, he published an account of his efforts entitled Metallum Martis. This was followed by his erection of a horsemill-powered blast furnace at Dudley, using a mixture of charcoal and coke. This furnace subsequently passed through several hands and probably closed by 1681. In the intervening years, it was associated with several forges in the nearby Stour valley and an experiment in making tinplate. Sir Clement Clerke, one of the partners in these enterprises, and later a significant metallurgical innovator, may have been trained by Dud Dudley. If so, Dud Dudley was the progenitor of later coal-based metallurgy, not merely its forerunner.

Introduction

Dud Dudley has, for many years, interested industrial historians, as he has been seen as a forerunner of the later coke-based iron industry. He is mainly remembered because he wrote a book, Metallum Martis or iron made with pitcoale seacoale etc, in which he set out his claim to have made iron, but without specifying precisely how he had done so. His claims have been widely discussed over the past century and more, and the views expressed have ranged from those who believed every word he wrote to the highly sceptical. Evidence has recently been discovered in the Public Record Office that Dud Dudley was concerned in a blast furnace built at Dudley sometime after the Restoration. This became part of a significant (but ultimately unsuccessful) enterprise, certain aspects of which have been described by R G Schafer, but the newly discovered evidence indicates that the business was more complicated than he indicated. Furthermore the partners in this furnace included ‘that excellent mineralist’ Sir Clement Clerke, who subsequently devised several coke-based metallurgical processes that were successfully introduced in the 1680s and 1690s. Sir Clement may thus be regarded as a parent of coke-based metallurgy.

In that case Dud Dudley was its grandparent, and not a mere forerunner of it.

Dud Dudley’s forebears

Dud Dudley was the natural son of Edward Lord Dudley, who owned an extensive estate in the Black Country, including the manors of Dudley, Rowley Regis, Kingswinford, Sedgley, and Himley. When he inherited it in 1586 the estate included ‘ironworks’, apparently ‘smithies’ (ie bloomery forges). These made iron by the direct process, by reducing the ore in the solid state using charcoal. This process produced a ‘bloom’, a spongy mass of iron, which then had to be consolidated and drawn out into a bar of iron using a hammer. Waterpower had been applied during the medieval period both to powering the bellows and the hammer. It is not known how many smithies Lord Dudley inherited from his father, but in 1585 they included Funsloe or Fundle Smithy in Baggeridge Wood (in Sedgley), the New Smythies in Himley and New Park Smithies (in Dudley New Park). There may also have been one at Cradley, where there was later a Smithy Croft near the forge.