

400 years (including myself), it is good to see someone approaching this well-travelled path with a fresh perspective. My only disappointment is, while the presence of buildings on other medieval bridges is briefly mentioned in the opening chapter, this was a subject that deserved more attention as the reader is left wondering if the phenomena of inhabited bridges was relatively commonplace or rare. In fact, in medieval England it was relatively common. Documented examples include: Avon Bridge, Bristol; Clopton Bridge, Stratford-upon-Avon; Exe Bridge, Exeter; High Bridge, Lincoln; Ouse Bridge, York; and Tyne Bridge, Newcastle-upon-Tyne (Harrison *et al* 2010, 49). However, numerous suburban or urban English bridges (at least ninety-two examples) possessed chapels (defined as a place of worship situated at the end of or attached to the structure of the bridge). Exe Bridge unusually possessed three chapels, one of which became a parish church during the thirteenth century (Brown 2019, 43–59). At least eighteen English urban bridges were fortified, normally by single gatehouses, but the Old Welsh and English bridges at Shrewsbury, plus the Tyne Bridge at Newcastle-upon-Tyne, all possessed drawbridges and gatehouses or barbicans (like London) providing defence in depth.

BROWN, S 2019. *The Medieval Exe Bridge, St Edmund's Church and Excavations of Waterfront Houses, Exeter*, Devon Archaeol Soc Monogr 1, Devon Archaeological Society, Exeter

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The Ludlow Castle Heraldic Roll. By ROSALIND CAIRD, JOHN CHERRY, PHILIP HUME and HUGH WOOD. 235mm. Pp xii + 242, many col ills, maps, plans. Logaston Press, Eardisley, 2019. ISBN 978910839379. £12.95 (pbk).

The Ludlow castle parchment roll was purchased relatively recently from an antiques market on the Portobello Road in London. Its previous ownership is entirely unknown, but it is closely linked with the chapel of Ludlow castle, and has been dated by the authors to 1576–80.

It records the heraldic scheme from an extension to St Mary's chapel undertaken at the behest of Sir Henry Sidney KG and completed in 1574. The roll begins with the eleven perceived owners of the castle in chronological order, followed by the twenty-three members of the Council of the Marches of Wales as constituted in 1570, beginning with Sir Henry Sidney as Lord President of the Council. The roll concludes with seven previous presidents, again in chronological order, with the most recent four presumed to have been lost due to the destruction of the end of the manuscript.

The roll provides an excellent vehicle for explaining the entire history of the castle and of the Council of the Marches. There are many interesting snippets of information, such as the fact that the fifteenth-century sword of state for the Council of the Marches has upon it the unidentified coat *argent a chief azure*. This is intriguing because of its similarity to the Templar arms *argent a chief sable*. Gilbert de Lacy, whose personal arms are unknown, built the round chapel of St Mary in the mid-twelfth century in emulation of Templar churches, and died as a professed Templar knight. The chapel was eventually allowed to fall into ruin, and the interior is no longer extant, but was recorded by the Reverend William Mytton in c 1735.

The authors were keen to explore the purpose of the roll, and have subjected it to painstaking scrutiny, including pigment analysis. The latter demonstrates the use of valuable pigments, including azurite and ultramarine. It has not been possible to determine with certainty who commissioned the roll, but it is clear that it was not created to inform the painter of the chapel shields, because there are significant differences in colour for two of the shields from those observed by Mytton, with that of Bishop Smyth having the tinctures reversed, suggesting that the artist was working from a carelessly tricked drawing made in the chapel. Sidney had a close working relationship with the heralds, four of whom were mentioned in his will of 1585, and he is known to have employed the painter-stainer Robert Greenwood. Robert Cooke, Clarenceux, was a particular friend who obligingly fabricated the first 150 years of Sidney's pedigree. Although appointed as Sidney's executor, he

was absent from his state funeral. This was organised by William Dethick, who as Garter King of Arms was necessarily involved in the obsequies of a Garter Knight. The authors consider that the arms on the roll were added by a skilled painter, one who exhibited certain 'idiosyncrasies' of style, but that the scrivener was added by a different, non-skilled (or elderly) individual. It is to be doubted that a professional herald could have been the informant for the original chapel scheme since the arms of Bishop John Alcock, the founder of Jesus College, Cambridge, were left blank. The authors described the arms of Miles Sandys as being enigmatic for two reasons: firstly because the colours on the roll are at variance with those noted by Mytton (which the authors consider to be the correct version), but more importantly because he was a fifth son, with at least two surviving elder brothers, but took as his cadency mark the crescent traditionally ascribed to the second son. Heraldic treatises have tended to create the false impression that the system of cadency marks was immutable from the Tudor period, but it is clear that no such certainty can be relied upon in the Elizabethan era. In all probability there was a long period during the sixteenth century when the heralds were not in complete agreement about the need for standardisation.

From the medieval era most of the same cadency markings had been used without attaching them to any particular son. Two further examples from the roll need not, therefore, be a cause for consternation: Sir John Throckmorton with an annulet for difference, supposedly the mark of a seventh son, when he was known to be the fifth, and William Gerard with a mullet for difference on the roll (third son), but a crescent on his tomb. It would be somewhat anarchic had brothers changed their arms every time an elder brother died, and the discrepancy on Gerard's funeral monument more likely constitutes a herald's idea of what the correct mark needed to be. This does not mean, however, that church monuments can be completely relied upon to bear what we now understand to be the correct markings.

The reproduction of all the arms in colour with a wide variety of additional illustrations make this an enjoyable and accessible guide, one which contains everything that might be wished. To round it off, the complete roll is illustrated on the fold-out front cover, inside of which is a reconstruction of the Elizabethan chapel.

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Adventure in Iron. The blast furnace and its spread from Namur to northern France, England and North America, 1450–1650: a technological, political and genealogical investigation. By BRIAN G AWTY. 295mm. Part one: pp xviii + 1–427. Part two: pp xii + 428–977, 37 figs, 18 tabs. Wealden Iron Research Group, Tonbridge, 2019. ISBN 9781916042308. £45 + p&p (hbk) from the Wealden Iron Research Group (www.wealdeniron.org.uk).

This monumental work, published posthumously in a limited edition of 350 copies available only from the publishing society, is the most important book on the early modern European iron industry to appear for many years. Probably its greatest strength is that it avoids the narrowly Anglo-centric tradition of studies of the industry in the British Isles. It does this partly by tracing the diffusion of the indirect process from its continental origins (rather than starting the story with the first blast furnace in the Weald), and partly by continuing the account from Britain to North America.

The book achieves these objectives in a highly original way, by discussing not merely the spread of the new technology but also the men who transferred it from France to England. Not only was Brian Awty effortlessly familiar with the German and French literature – ancient and modern, national and local, historical and technical – in a way that no other recent British historian of the subject has been, but he worked assiduously in French as well as English local archives, tracing families who were involved in the industry on both sides of the Channel. No one has attempted this before. The outcome is not merely a path-breaking study of the iron industry in Britain and on the Continent, but also a major contribution to the wider question of the diffusion of technology in Europe between the mid-fifteenth and mid-seventeenth centuries.

Awty did not particularly try to revise the chronology of early blast furnace construction in England. Most furnaces in this period were in the Weald, where a generation of scholarship, initially led by the late David Crossley and continued by the Wealden Iron Research Group, has established when almost all the furnaces and forges were in use and by whom they were operated. Less work has been done on other regions for the period before 1660 and here Awty in general relied on published sources. The novelty of his study lies in his prosopographical approach, showing how mobile skilled ironworkers were. In a few cases, his identification