

**THE
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OF THE
WILKINSON
SOCIETY**



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THE WILKINSON SOCIETY

The Society was formed in 1972 to meet the demand for an organisation to preserve the material and documentary evidence of Broseley's industrial past. Since an important part in this industrial past was played by John Wilkinson, who lived for a time at "The Lawns", it was decided that the organisation should be known as The Wilkinson Society. The aims of the society are:

- (i) to act as custodian of any relevant material and information and to make such material and information available to interested individuals and organisations;
- (ii) to promote any relevant preservation activity and to assist individuals or organisations in such activity where deemed appropriate;
- (iii) to provide a link with the community of Broseley for individuals or organisations undertaking local historical research.

Administration of the Society is by an annually elected committee. Membership is open to anyone interested in the Society's aims and activities. These activities include illustrated lectures, social evenings, researching and exhibiting the collection, field trips and coach tours. Members are kept informed by newsletters, and this annual Journal presents articles on the history of the Broseley area, John Wilkinson, and industrial archaeology in general.

Applications for membership, together with £3 annual subscription, should be addressed to Mr David Shinton, Secretary, Gestiana, Woodlands Road, Broseley TF12 5PU.

Contributions to the Journal should be sent to The Editor, Neil Clarke, Cranleigh, Wellington Road, Little Wenlock, Telford TF6 5BH.

Our 25th Year

JOHN WILKINSON AND THE IRON BRIDGE

Part 2. The Background to the Bridge

by Michael Berthoud

Before looking at the apparent discrepancies between John Randall's account of the building of the Iron Bridge and the information contained in the Minute Book, it would be as well to consider why the bridge was proposed in the first place. It has often been described as 'a bridge to nowhere'. Indeed some recent writers have gone out of their way to suggest that there was no real need for the bridge at all and that it was built chiefly to advertise Abraham Darby's Coalbrookdale ironworks. In fact, the true state of affairs in the eighteenth century was very different.

In the eighteenth century Coalbrookdale (originally Caldbrook Dale according to Randall) was an obscure village about a mile to the north of the Severn and forming part of the parish of Madeley. The spelling 'Coalbrooke Dale' was retained until the end of the century at least, and the ironworks itself, usually referred to today as the 'Coalbrookdale Works', was in its day known as the 'Dale Company'. The company's reputation in the eighteenth century rested on coke, cooking pots and cannon, and Coalbrookdale was virtually unknown to the rest of the country until after the Iron Bridge was built.

The difficulty of defining Coalbrookdale geographically has bedevilled generations of historians. Not only did it apply to the village on the north bank of the Severn, but to both sides of the Severn Gorge for some distance upstream and downstream of the site where the Iron Bridge was eventually built. Obviously, before there was an Iron Bridge there could not have been an 'Ironbridge Gorge'. Once the bridge had been built and the area's international fame had become established, the name Coalbrookdale was used even more widely. By the early nineteenth century even the Coalport China Works was regarded as being in Coalbrookdale, and at one time John Rose, never a man to miss a good marketing opportunity, used it as a factory mark on his porcelain.

Across the river to the south lay Broseley, an important industrial town with fast-growing coal, iron and clay industries. John Wilkinson had been making cast iron at his Willey Foundry at Broseley since the 1750s.

To the north of the river lay the coal mines of Madeley and iron works at Ketley and Horsehay. In addition, there were extensive limestone works on the north bank of the river, gradually eating their way into Lincoln Hill (the name itself doubtless a corruption of 'Lime Kiln Hill'). These two centres of local industry, Broseley and Madeley, were linked only by a ferry across the river. The geography of the gorge caused the river to rise and fall with dramatic suddenness, the current was strong and the ferry crossing was often hazardous. The only alternative to the ferry was by way of the bridges at Buildwas and Bridgnorth, an expensive detour in either direction.

This combination of geographical features and industrial necessity presented a unique challenge to the eighteenth century bridge designer, a fact which has not been sufficiently taken into account in considering the history of the bridge. Randall expressed very succinctly the problems posed by the site when he wrote, in his History of Madeley, that the Iron Bridge represented 'a great advance upon the rickety wooden structures, affected by wind and rain, it was no less so upon those clumsy-looking ones of stone higher up and lower down the river, which, choking up the stream and impeding navigation, caused apprehensions at every flood for their safety' and, in his book on The Wilkinsons, of 'the heavy, clumsy looking structures of stone, that impeded navigation, and choked up the stream by their huge abutments'. Ideally, the bridge should not further narrow the gorge but should span the river in a single arch. That was the nub of the problem. The gorge was deep and narrow but navigable; the River Severn was the main waterway to the port of Bristol. Had it simply been a matter of getting from one side to the other it would have been easy enough to build a stone bridge with two arches. Although the gorge was narrow, it was still too wide for a single span built of brick or stone. Another important consideration was the height of the arch; it must allow tall ships to pass under it, again presenting difficulties if it were to be built of brick or stone. A single span bridge of cast iron, if such a thing were possible, would overcome all these problems. On the other hand, it had never been done before and needed great courage, faith and conviction. In national terms, the bridge itself was not of great interest or importance and did not become so until after it was built. It did not form part of a far-reaching road network. It did not link any distant towns. It was, in fact, a matter of purely parochial interest, but to local industrialists it was a matter of vital importance. What aroused the admiration of the world at large and earned the bridge international acclaim was not so much its location as the fact that it was built of cast iron. To suggest that it was built as an advertising gimmick to promote the Coalbrookdale ironworks is to trivialise the bridge and insult the memory of all who took part in its construction. One has only to look at the muster roll of those appointed as commissioners in

1775, when the trustees of the bridge first met, to recognise the absurdity of such statements. Among those appointed were the Earl Gower, Lord Craven, Sir Henry Bridgeman (a major landowner, owner of Weston Park and father of the first Earl of Bradford), Sir Watkin Williams Wynn, George Forester (a major landowner in the Broseley area, landlord of John Wilkinson's New Willey Ironworks and the father of the first Lord Forester of Willey Park), William Pulteney ('the richest Commoner in England', MP for Shrewsbury for 37 years and patron of Thomas Telford), the Rev. John Fletcher (vicar of Madeley), Abraham Darby, John Wilkinson, Edward Blakeway and Thomas Farnolls Pritchard. To these were added, in November 1775, John Stanley, the Rev. Mr. Holmes, William Ware, Daniel Onions, John Guest and Thomas Rowley.

The level of interest shown in the project may be judged by comparison with that shown in the Shropshire Canal project in 1788 (while the problems surrounding the Iron Bridge project were still unresolved), which was founded with a share capital of £50,000, with Richard Reynolds and Joseph Rathbone taking £6,000 worth each and John Wilkinson £5,000 worth. In comparison with these figures, the Iron Bridge was financed with small change, the original sum raised for its construction being a mere £3,150. Any one of the major shareholders in the bridge could have carried the cost single handed, and it is difficult in retrospect to appreciate the passions that were aroused by the proposal to build it of cast iron. Clearly it was a matter of principle rather than of money.

In the eighteenth century neither central government nor local authorities had the power or the will to build bridges and these, like canals and turnpike roads, were left to private enterprise to provide. It follows that if there was a real need for a bridge, there was also the potential for collecting lucrative tolls. Local businessmen who invested in the bridge would be assured not only of a dividend but of free rights of passage.

The rapid growth of Broseley and Madeley in the second half of the eighteenth century provided the spur. There was no shortage of money for investment. Wilkinson, living at Broseley, was already a wealthy man. So also was his partner and brother-in-law, Edward Blakeway, a former mayor of Shrewsbury, who had retired from his successful drapery business and invested his money in a variety of local industries, including Wilkinson's iron foundries, banking, a new bridge across the river at what was to become Coalport and, later, the Coalport China Works itself, in which he was a partner with John Rose.

On both sides of the river there were landowners, industrialists and members of the local gentry who would be willing to finance

a proposed new bridge in the interests of safer and more convenient travel and the opportunity to gain a good return on their investment. Most of the potential investors would have been familiar with bridges built of stone, brick or timber and would have regarded any of these as a safe investment. There was, however, a growing awareness of the potential of cast iron as a building material, an awareness that Wilkinson shared with the architect Thomas Farnolls Pritchard.

Bridges had become a matter of great concern to architects and industrialists along the Severn following severe flooding in 1770. The flooding that year was so serious that it became a yardstick by which floods continued to be measured for the next 25 years. Contemporary records refer to severe flooding in Shrewsbury in February 1794 and that '... the Severn at Cotton-hill was 9" higher than in the flood of 1770; in Frankwell 7", and in Coleham 2 1/2..." The Severn rose at Coalbrookdale 25 1/4" higher than it did in November 1770.

These figures are useful in showing the exaggerated rise in flood levels caused by the constriction of the river as it flows through the Gorge. Any new bridge contemplated would need to be designed to withstand the pressures of such flooding, which must also have increased the hazards of crossing the gorge by ferry. Some years later, in 1779, while taking 43 workers from the Coalport China Works home to Broseley, the ferry did capsize with the loss of 28 lives. Pritchard had left Shrewsbury in 1769 to live at Eytoun Tower, the only remaining part of an Elizabethan house close to the river, from where he would have been well placed to observe the effects of flooding. He seems to have occupied himself at this time in designing buildings and bridges rather than in undertaking practical estate work. He must have been well aware of another incident in the gorge which had occurred in 1773 and was widely reported at the time. This was the landslip at Buildwas which may well have affected Pritchard's thinking on bridge design.

'Next the river', according to a contemporary account, 'on the east side, there was a coppice, in which grew twenty or thirty large oaks. This coppice was forced into the Severn, and entirely choked up the channel, one side resting on the opposite shore. Most of the trees still stand erect; some few lean on one side and three or four are fallen down. The Land, which came down from the higher part of the hill, brought the hedges and trees standing in their proper position, a few only excepted. A turnpike road, at the bottom of the hill, which ran parallel to the river, is removed about thirty yards nearer the river and is, in all probability, made forever impassable. 'The coppice...forced the waters of the Severn in columns like a fountain into the air, heaving the bed of the river up, and throwing out the fish upon the dry land, and

leaving the channel dry below! It is not said how far, but we may suppose from the time the current was stopt, that it must have been for some miles. The stoppage of the river caused a sudden inundation above and a fall below, which happened so quick that some boats were heeled over and, when the stream came down, were sunk.'

It was against this background of a volatile river, subject to sudden floods and associated landslips, that Pritchard was asked to design a new bridge across the Severn at Stourport in Worcestershire. The story of this bridge, like so much of Pritchard's history, has been lost. His grandson John White, himself an architect, wrote in 1832 that Pritchard had originally intended to build a wooden bridge but changed the design to one built of bricks around an iron centre.

An advertisement in Berrow's Worcestershire Journal in 1774 invited trustees, to attend a meeting at which a 'matter of some consequence' was to be discussed. It seems that Pritchard had designed for Stourport 'a commodious wooden bridge' with a single arch but in the end built one of either brick or stone (accounts vary as to detail) around a core of iron crossing the river on three arches. The Stourport bridge was completed in September 1775, the same month in which the first meeting of the iron bridge trustees took place at Broseley. It was damaged by the severe floods of 1795 and was demolished soon afterwards. It is just possible that Pritchard's design for a wooden bridge, set against his friendship with Wilkinson, the fanatical promoter of cast iron for all purposes, may have ignited the first spark in Pritchard's mind. Suppose that, on looking at his design in wood, the thought struck him that, if the individual members could be cast in iron instead, with all the traditional timber joints exactly reproduced in the casting, the bridge would be much stronger and could be made to span a broader stream. Suppose that, on presenting his proposals to the trustees at Stourport, he was met with sheer horror and incredulity. What could be more natural than that the trustees should call a special meeting, advertising in the local newspaper that it concerned 'a matter of some consequence'? Suppose that, at that meeting, Pritchard's plan was rejected out of hand and he was forced to compromise and design a bridge of brick with only an incidental use of iron. What more natural than that he should then write to his friend John Wilkinson, on whose full support he could rely? All this is, of course, pure speculation but it does have the merit of being fully consistent with the known facts. Whatever the facts of the matter the possibility must remain that Pritchard had decided on an iron bridge at Stourport but had been forced by the trustees to compromise and build a bridge partly of brick and only partly of iron, a bridge that in the end proved unsatisfactory and was destroyed in 1795.

John White wrote later that 'Pritchard made a gradual progress in the application of iron to the erection of bridges' suggesting that the Stourport bridge was only partially of iron and that he was working towards the idea of a bridge built entirely of iron. In 1773, the same year in which Pritchard designed the Stourport bridge and the year in which the Buildwas land slip occurred, Pritchard wrote to John Wilkinson suggesting the idea of an iron bridge across the Severn Gorge, linking Broseley with Madeley. In this project he could not have found two more ideal supporters than Wilkinson, the fanatical man of iron, and Edward Blakeway, his partner and financier in many schemes, both men then based in Broseley. The idea surely could not fail.

Nor is it surprising that, of the two principal ironmasters of the area, he chose to confide in Wilkinson rather than in Abraham Darby. For one thing, he already knew Wilkinson well and had had dealings with him over the past seventeen years. For another, Wilkinson was an older and more experienced man as well as being an adventurous and dedicated user of iron. By contrast, Abraham Darby III was then only twenty-three years of age and, although he had been managing the day-to-day running of the Dale works since he was eighteen, he could obviously not have matched Wilkinson in experience, ingenuity or force of personality.

Wilkinson's reaction to Pritchard's proposal is not recorded but it was doubtless an enthusiastic one. As early as February 1774 the Shrewsbury Chronicle reported that the people of Broseley and Madeley were proposing to build an iron bridge of one arch over the Severn near Coalbrookdale with a span of 120ft. The wording of this announcement is crucial to what followed and to the way the story has been presented in more recent times.

The first mention of the possibility of an iron bridge seems to have come in Pritchard's letter of 1773, supported by the subsequent newspaper advertisement. Failing any stronger claim, the credit for the concept itself must go to Pritchard who has, for too long, been left out of the reckoning. A contemporary portrait of Pritchard bears the anonymous inscription:

*'Thomas Farnolls Pritchard
Inventor of Cast Iron Bridges'*

...a fitting epitaph for the designer of the world's first Iron Bridge.

Thomas Turner at Caughley

by John and Nadine Shearman

In the past, Thomas Turner's Salopian China Manufactory at Caughley, which was active from about 1775 until 1799, has been relegated to being merely the precursor of Coalport and overshadowed by momentous events elsewhere in the Gorge in the last quarter of the eighteenth century. Over a period of time, the output of the pottery has been exhaustively studied and re-evaluated and its reputation enhanced by Geoffrey Godden, whose books are sure to remain the standard reference works¹. Recently, more general research undertaken by ourselves and others has made available additional information which makes it possible to throw more light upon the arrival of Thomas Turner in the Gorge, and potentially upon his partner Ambrose Gallimore. Jane Browne of Caughley Hall also played a much greater part than might have been assumed from the tradition of her husband 'Squire' Browne simply founding the pottery on his land in about 1750.

Corrections as fundamental as the date of Thomas's birth, 1747 rather than 1749, and many other new details, help build a more accurate picture of his family background. One sister, Elizabeth, married into the Wyke family of Broseley, but his father and his brother, both named Richard, it seems pursued very different paths from Thomas. Both were academics with many publications to their name, and quite possibly both were involved in running a school at Loughborough House in Surrey while Thomas was in business at Caughley. The brother married the widow of an Indian Army officer, had a house in London, and died at Margate in 1788. The father was responsible at one time or another for five chapelries and parishes just to the south-east of Worcester, and died in 1791. At one of these, Norton-juxta-Kempsey, Thomas may well have passed his childhood in the 1750s.

A great deal of uncertainty nevertheless still remains about Thomas's life before he came to Caughley. It used to be assumed that he was apprenticed at the Worcester porcelain works. That now seems very unlikely, but some close association or involvement for a period of time as a relatively young man seems the best explanation of his subsequent career. We know from a copy of the indenture² that Thomas was apprenticed to his father as a writing master on 28th October 1761, very close to the date of his fourteenth birthday. The freedom of the City of Worcester, an essential qualification for trading there, could be acquired by

¹ Especially, *Caughley and Worcester Porcelains 1775-1800*, Jenkins, 1969.

² Victoria and Albert Museum, LM 468.

³ Worcester Record Office (St. Helens).

a time-served apprentice. The relevant entry in the Freemen Indenture Book³ reads, in a standard form: "Thomas Turner was admitted and sworn a Citizen as Apprentice to his Father Richard Turner Writing Master". It is dated 14th January 1771. Thomas would already have completed his seven-year apprenticeship more than two years previously, and obviously had not rushed to apply to become a freeman. It seems reasonable to conclude that January 1771 was the moment he first wished to trade independently in the City, at the age of 23.

⁴ William Chaffers - Marks and Monograms on Pottery and Porcelain, 15th ed., 1965 ., p. 135.

⁵ Shropshire Record Office.

⁶ Quoted in e.g. Geoffrey Godden, op.cit.; and Bernard Watney - English Blue and White Porcelain of the Eighteenth Century. Faber, 2nd ed. 1973.

⁷ Llewellyn Jewitt - Ceramic Art of Great Britain, 2nd ed., 1883, reprinted 1970, quoted liberally since, with no indication of the original source except that Gaye Blake Roberts, in *Ars Ceramica* 1990, cites Aris's Gazette. Neither this nor the Shrewsbury Chronicle published on 1st November 1775; we found no sign of the text in any adjacent editions; and there appear to have been no other local papers at that time. The mystery remains unresolved.

⁸ Shropshire Record Office; the later map is reproduced by Geoffrey Godden, op.cit., with the date of 1793, arising no doubt from a misreading of the very much reduced print size.

The timing of his subsequent arrival at Caughley and the nature of his original agreement with Ambrose Gallimore have been the subject of much debate. The current state of knowledge suggests the following general conclusions: that Thomas Turner had been dealing in china at Worcester; that he had joined Ambrose Gallimore at an already existing Caughley pottery at some point before July 1775, the date of an advertisement in Aris's Birmingham Gazette; that he had first arrived perhaps three years before if the memory of his workman Perry is to be trusted⁴, and certainly by December 1773 because he then witnessed Jane Browne's will.⁵ To set against the theory of an early start to expanding and modernising the works, there are the references in the account book of James Giles, London decorator and dealer, which seem to locate Turner in Worcester until June 1775.⁶ To verify exactly when the expanded Caughley factory was fully up and running, it would be even more helpful if the source of a much-quoted text of 1st November 1775, announcing that "the Porcelain Manufactory erected near Bridgnorth, in this County, is now quite completed" could be identified.⁷

For the subsequent development of the works, an interesting comparison can be made between two maps of the Caughley estate, one dated 1780 and the other 1795.⁸ The latter clearly shows the layout of the Porcelain Manufactory and the newly built Caughley Place nearby, and records Thomas Turner's ownership of much of the adjoining land. The new house and its grounds occupy what was an open field on the earlier map, but many of the other buildings on the estate and of course the field boundaries can be matched with a little care. Two points emerge: the saggar works which is clearly marked in 1780, at some distance from the manufactory, has completely disappeared in 1795; and the earlier map shows a very different layout for the manufactory itself. It could of course be that this is simply a matter of different ways of recording similar buildings, but both the saggar works and the manufactory seem to be drawn to represent a particular shape on the 1780 map. It is tempting to speculate whether this might mean that there was a further expansion of the works in the 1780s.

9 Peter Roden, Northern Ceramic Society Journal, 1997.

Growing knowledge suggests that the role played by Ambrose Gallimore in the development of the Caughley factory may also need re-evaluation. Strong circumstantial evidence suggests that this was indeed the Ambrose Gallimore who married Anne Spoadle (sic), sister of Josiah I, in December 1745⁹, but no mention of Anne Gallimore in Shropshire has emerged. Jane Browne, in her will of 1773, refers to Ambrose as "my servant" and yet makes him the not inconsiderable bequest of £500. She also requires her trustees to "permit and suffer my said servant Ambrose Gallimore to hold and enjoy the brick and sagger works on my estate at Caughley in the same manner he now enjoys, the same as long as he thinks proper to continue if not injuring the woods or coppices." Clearly, Thomas Turner is not yet in full control.

10 Public Record Office, PCC 426 Sept 1790.

11 Stafford Record Office.

Subsequently, Ambrose Gallimore remained in the area long after his part was originally assumed to have ended. Wenlock Borough records show him to have been Bailiff in 1785. Indeed, it seems that he remained a man of some status and wealth until the end of his life. His will¹⁰ was drawn up on 2nd April 1789 and proved on 23rd September 1790. These dates certainly match the burial on 20th August 1790 of an Ambrose Gallimore at Stone in Staffordshire. In the register¹¹ he is described as Gentleman, of Walton (a village just outside Stone). The date and place of his baptism, and likely reasons for his 'return' to Staffordshire, remain elusive. However, his will, together with that of Jane Browne, reveals that Ambrose was not what most people have always assumed him to be, the father of Thomas Turner's first wife Dorothy, but rather her uncle.

That Ambrose thought highly of his niece is made clear by a direct bequest of £600. However, new light is shed upon his close relationship with her by the terms of her marriage settlement which are fortunately repeated in some detail in his will. Dorothy was well provided for, during Ambrose's lifetime and after, and he had made sure not only that she herself would be relatively independent but that the very substantial sum of one thousand pounds paid over on the occasion of the marriage in return for certain "considerations", unfortunately unspecified in his will, would remain firmly in the Gallimore family. For Thomas Turner to agree to this, one can only assume that the quid pro quo was indeed worth having, and of course that Ambrose Gallimore was wealthy enough to afford it. We might for example wonder when Ambrose relinquished his interest in the pottery. Directories of 1783 and 1784 still record 'Turner and Gallimore' as porcelain manufacturers at Broseley. There is certainly a risk that this information is out of date and simply repeated without checking, but there are significant additions and deletions between the two editions elsewhere in the Broseley

12 Bailey's Western and Midland Directory, 1783; Bailey's British Directory, 1784 (Shropshire Record Office, photocopied extracts). The Turner and Gallimore entry reads "Porcelain Manufactory" in 1783, "Porcelain Manufacturers" in 1784.

section, and a small change in that particular entry.¹² More evidence is required to support any firm conclusions.

13 Hereford Record Office.

Thomas Turner and Dorothy Gallimore, bachelor and spinster, were married by licence, on 3rd October 1783. Sadly, the licence, dated 1st October¹³, tells us no more, but it is interesting to speculate why they should have married 10 years or more after Thomas first arrived at Caughley. Dorothy Gallimore has been said to be the niece of Edward or Jane Browne of Caughley Hall¹⁴. No confirmation has come to light, nor is there any indication of why she might have been living at Caughley, if indeed this was the case. We could perhaps suggest that she was there as a companion for Jane, who as we shall see had been widowed in 1751 and had no surviving children, but that was many years before. The 1779 codicil to Jane Browne's original will of December 1773 includes the phrase "as circumstances are much altered since that time" as explanation of a new bequest to Dorothy of £100 together with "all my silks linen and laces". This certainly suggests an increasingly close relationship in the intervening years. Alternatively, Dorothy may have been too young to marry earlier and have been living at Caughley under her uncle's guardianship rather than as a companion to Jane, but the fact remains that she witnessed the 1773 will and would presumably then have been an adult.

Ambrose Gallimore's reported lease on the Caughley factory, for 62 years from 1754, would have been agreed with Jane Browne, rather than with her husband Edward, who died in March 1751. The will was subject to a dispute¹⁵, and was not proved until more than two years later on 19th July 1753, which perhaps would have led to some delay in formalising an arrangement which may well have existed in practice for some time. Ambrose had certainly been in the Barrow parish for some years as he witnessed Edward Browne's will on 27th August 1749 and a codicil on 25th January 1751.

15 Public Record Office, PCC 333 July 1753 ; a 'sentence' was added before probate was granted - this is an indication of a dispute, as is perhaps the codicil previously added by Edward himself, doing no more than confirm the provisions of the original will.

In the first half of the eighteenth century, the Browne family was apparently well established not only at Caughley, but also at Benthall and Broseley. Towards the end of the seventeenth century, there had been at least nine children of Ralph Browne of Caughley and his wife Katherine Benthall, through whom the Brownses inherited the Benthall and Broseley estates. However, by the time Edward inherited Caughley, probably in 1742, there were very few other male members of the family still living, one of them being his uncle, Ralph of Broseley and Benthall. This Ralph died in 1763, and through his widow Anne (née Turner, but it seems there is no connection!) Benthall and Broseley left the Browne family. Edward married Jane Clowes at Stone in Staffordshire on 31st March 1749. They appear to have had only one child, John, who died an infant. He was baptised at Barrow

on 9th June 1750 and buried at Benthall on 7th December, just 4 months before his father. Although Jane remained living at Caughley until her own death in 1779, the direct male line of the Browne family ended at this point. The succession passed to Ralph Browne Wylde Browne, the son of Elizabeth Wylde, daughter of Ralph Browne, who had held Caughley before Edward and was his elder brother. The future of the succession may have been the cause of the dispute over Edward's will, in which he left everything to his wife Jane without restriction as to how she should dispose of it.

Elizabeth Browne married Thomas Wylde at Egham in Surrey on 19th August 1765. Thomas was a member of the Wylde family of the Commandery in Worcester and Glazeley near Bridgnorth. They had been very prominent in Worcester during the sixteenth and seventeenth centuries, having made their fortune as clothiers. One branch of the family acquired the Shropshire estate towards the end of the sixteenth century, but Thomas Wylde IV was Member of Parliament for the City of Worcester from 1701-1727. The expense of standing for parliament may have led to the decline of the family's fortunes at this point. The Glazeley estate had passed to the Worcester branch in 1695 and it seems had increasingly become their base. The Commandery was let out to tenants, mortgaged and eventually sold in 1764 just before Thomas's marriage to Elizabeth Browne.¹⁶ However, if the Wylde family still maintained any presence in Worcester around the middle of the century, then it is more than likely that they were acquainted with Richard Turner from his own reputation in the City. The Commandery lay just outside the City itself, but within the parish of St. Peter of which Turner's chapelry of Whittington was a part, and on the same side of the City as his parishes of Norton, Stoulton, Elmley Castle and Little Comberton.

It has been very tempting to wonder if Thomas Turner came to Caughley because he was somehow already acquainted with, even related to, either the Brownes or the Gallimores. The Wylde family offers an interesting alternative possibility for making the Turner family aware of the existence of the Caughley estate and its pottery. All the personalities involved lived in a relatively small area of north Worcestershire and south Shropshire. No explanation is required for the attraction of the Ironbridge Gorge to an aspiring potter in the middle of the eighteenth century, but perhaps we are nearer to understanding why Thomas Turner's chosen site was Caughley.

16 R.C. Purton -
'Glazeley', in
Transactions of
Shropshire
Archaeological and
Natural History
Society, vol. 55, 1954-
56; and also C.M.
Latta, Visitors' guide to
the Commandery, 1977.

Book Reviews

Betancourt sheds light on the Wilkinsons

The chance discovery of a new book in the Library of the Institution of Civil Engineers provided a new insight into sources for the activities of the Wilkinsons. A Spanish Engineer, Agustín de Betancourt y Molina (1758-1824), had spent time travelling in England, France and Russia, and recorded what he saw in a large number of detailed drawings similar to those found in encyclopaedias from the period. The range of subjects was enormous, but the immediate interest is in sets of drawings of the new James Watt double-acting engines, prepared from information obtained somewhat clandestinely, and possibly for the same group that had ordered the Watt pumping engines at Chaillot for the Paris waterworks, provided in large part by John Wilkinson about 1780 (for which, see Wilkinson Studies II); and of the cast iron cannon manufactory at Indret, an island in the lower Loire, in which his brother William played a part.

There are other items of local interest, such as the headgear of the Coalport incline, in a drawing dated from 1793-6 (and actually captioned as the Coalbrookdale lock), which is now in the Library of the Ecole Nationale des Ponts et Chaussées, Paris, MS 1558. This archive also holds a series of drawings made by Betancourt of a double-acting engine, dated 1788 (sic) and a Mémoire sur une machine à vapeur à double effet, dated 1789, as MS 1258.

A summary of Betancourt's activities, well illustrated with his drawings, appears in an issue of *Ingeniería Civil*, No.102, 1996, pp7-20, published by the Ministerio de Fomento. This contains a bibliography of Betancourt's work. The authors are D.Romero Muñoz and A.Sáenz Sanz: *Un ingeniero español al servicio de dos coronas. Betancourt: los inicios de la ingeniería moderna en Europa.*

However, this is only linked to the publication of a much larger catalogue, containing sixteen studies on different activities and industries, profusely illustrated with original drawings from collections all over Europe — not all by Betancourt; and also an extended bibliography linked to Betancourt. Unfortunately the scale of many of the illustrations does not do full justice to the detail — particularly so in the case of the Indret works.

The work is: Betancourt: los inicios de la ingeniería moderna en Europa, Madrid 1996. Colegio de ingenieros de caminos, canales y puertos; colección ciencias humanidades e ingeniería, No 54. ISBN 84-380-0112-2.

The section concerning the works at Indret ("Yndrid") is dated 1791, and is from the collections of the Biblioteca del Palacio Real, Madrid, IX-Mesa 97. It is stated that in order to cast the cannon vertically, care had to be taken to avoid problems with inundation of the pit by high tides in the river. The same high tides were originally used to drive a pair of waterwheels for the boring engines. The raw material for the furnaces was primarily defective old cannon, and a tall crane was provided to raise these to a great height, in order to drop and fracture them, to reduce them to manageable pieces for the furnaces — other cannon acting as the anvil. This machine is reproduced as one of some dozen plates also covering boilers, single-acting engines and the building and machinery for boring cannon. The site also had an iron tramway with turntables to move the cannon during production, which reached 150 a year. Wilkinson appears to have had no hand in later developments of sand moulding, and the replacement of the waterwheels with steam engines, which were actually the work of Delamotte, an associate of the Périer brothers, who ordered the 1780 Paris engine from James Watt/John Wilkinson. The text presented does not actually define who built which parts of the manufactory illustrated, but the bibliography refers to manuscripts by Betancourt which include historical surveys; so there may be a mass of additional information. There are also sets of drawings for Spanish installations at Seville and Barcelona.

The text on the double-acting engines is equally brief, but describes Betancourt's visits to Birmingham and to Albion Mills (Blackfriars) in 1789 (financed by the Périers, it is suggested, with intent to acquire knowledge of the double-acting engine, still only a rumour on the Continent). In Birmingham he was received with courtesy, but obtained no information. At Blackfriars however, he was allowed a limited view of a machine at work — conspicuously without the chain transmission of the single-acting engine, but with other parts such as the centrifugal governor obscured. Betancourt nonetheless presented a *Memoria* to the French Academy, and the secrets were out. Betancourt appears to have directed the construction of a new double-acting engine for the Périer brothers during 1790. On 23 July 1790 Watt belatedly wrote to Boulton about not trusting foreign visitors. There are three drawings of an unidentified Watt double-acting engine in the book, including one detail sketch of the valve gear, all from the Ponts et Chaussées collection.

Again, there is a possibility of significant new information from this source on the role of the Wilkinsons in the dissemination of new technology, though not directly from the two publications described here. The catalogue, however, is well worth seeking out in its own right, as a magnificent collection of drawings of engineering works from the Wilkinson era.

Richard Barker

The Industrial Archaeology of Shropshire

by Barrie Trinder (Phillimore, 1996)

At the outset the author explains that this book springs from nearly three decades of teaching and field work in Shropshire, and he acknowledges the conversations with countless students and colleagues which have influenced his work. The outcome, the first comprehensive survey of the county's industrial archaeology, was completed before he took up his new post at Nene College, Northampton. Those who have contributed to and benefited from Barrie Trinder's scholarship over the years—whether as a result of his editorship of the Shropshire Newsletter (the twice-yearly newsletter of the Shropshire Archaeological Society, to which Barrie added a distinctly industrial archaeological flavour in the late 1960s and early 1970s); or his classes, research groups and field trips (when he was Shropshire Adult Tutor for Historical Studies); or his work at the Ironbridge Institute (where he became Senior Fellow in Industrial Archaeology)—will particularly welcome its publication. Barrie Trinder has gained an international reputation as a leading figure in the field of industrial archaeology as a result of his enthusiasm and dedication, the breadth and depth of his research and the clarity and readable nature of his many publications—and all these characteristics are present in this volume.

In his magnum opus of five years ago, *The Blackwell Encyclopaedia of Industrial Archaeology* (ed. Barrie Trinder, Oxford: Blackwell, 1992), he offered this definition of a discipline which is now forty years old:

It is in practice not the study of the whole of the physical evidence of society in recent centuries, but one which centres on manufactures and mining and their associated transport systems, civil engineering works and services, and overlaps into many areas of concern that are shared with other disciplines. (p. 351)

This present volume provides a theoretical foundation for industrial archaeological research of relevance both within and beyond the borders of Shropshire. The method it advocates is to use 'archaeological evidence in a disciplined manner to enhance understanding of the past, to set up models, to pose questions, to accumulate data about the artefacts, images, structures, sites and landscapes which form the subject matter of Industrial Archaeology, to analyse it and reach conclusions about it which enhance our understanding of the past'. The purpose of industrial archaeology, it suggests, is 'not merely to summarise nor to ossify but to stimulate, not to bring comfort and congratulation but to provoke, to consider not just questions of local history but the place of mining and manufactures in man's past' (Introduction, p. 6).

Chapters in the book cover rural and market town industries, coalfield landscapes, the textile industries, the landscape of upland mining and the archaeology of transport, and include very useful statistical tables. The concluding chapter on perspectives is followed by appendices on water-power sites in Shropshire, turnpike road data and organisations concerned with industrial archaeology, by a comprehensive bibliography and by indexes on names, places and subjects.

The national importance of Shropshire's industrial past cannot be overestimated, and Barrie Trinder's book, like his earlier *The Industrial Revolution in Shropshire*, is a major contribution to our understanding of the subject.

Neil Clarke

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