

## JOSEPH BUTLER, COAL AND IRON MASTER 1763-1837

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During his perambulations of the county in the first decade of the nineteenth century the indefatigable Derbyshire reporter to the Board of Agriculture, John Farey, met or corresponded with most of the leading industrialists and agriculturalists in the area. One whose ideas and activities he mentioned frequently was Joseph Butler, listed in the preface as an 'iron and coal master and viewer' of Killamarsh. His son Joseph Butler junior is also mentioned. Farey's magnificent survey has long been the main source of information about the local coal and iron industry in this period and about the tramroads built to connect collieries and ironworks with nearby canals. One particular statement for which Farey remains the only authority is that 'the earliest use of ... flanged Rails above ground (for they were first in the underground Gates of Mines, it is said) was on the S. of Wingerworth Furnace, leading to the Ironstone Pits, by Mr Joseph Butler, about the year 1788'. Butler's apparent primacy in the use of L-section plate-rails, a pattern which first appeared in a colliery at Sheffield some fifteen miles north of Wingerworth, is the innovation for which he is best known and in other respects he remains an elusive figure.<sup>1</sup> His business collapsed in the depression following the end of the war in 1815 and no family papers have survived. It is possible, however, by piecing together information from various sources to say rather more about his origins and career than can be discovered from Farey alone, and to set his activities against the background of the small Derbyshire iron industry of the day.

The builder of the plateway at Wingerworth was the eldest son of a man of the same name who appears to have come from the East Riding hamlet of Bowthorpe, five miles north-east of Selby. In the 1770s the elder Joseph Butler was in practice as a land agent, living at Micklegate in the city of York; advertisements for his services appear in local newspapers from 1774. Towards the end of his life he moved to Gray's Inn (which suggests he was also an attorney), where he died in November 1785. The only clue to his own origins comes from a deed of 1788 which describes him as 'late of Bowthorpe in the County of York Gentleman deceased', the only son and heir of Ann Bray, the daughter of William Bray of Brackenholm (also in the East Riding) and her husband, another Joseph Butler.<sup>2</sup>

Although his name does not appear in land tax assessments, Joseph Butler seems to have kept a house at Bowthorpe, for in his will, dated 2 November 1785 and proved on 7 February the following year, he describes himself as a 'Gentleman' of that place. The will refers to his wife Elizabeth, who appears as a widow of the city of York in the deed of 1788 already mentioned, and eight children, two of whom, a daughter Ann Elizabeth and a son Joseph, were already 21. Ann was by this date married to William Ellis; Joseph was still single. Both had been provided for during their father's lifetime and were thus excluded from the will, although Butler's copyhold property, surrendered to his own use for his life and then to his wife for hers, would ultimately pass to Joseph as eldest son and customary heir. His freehold estate was entrusted to Edward Wolley of the city of York, John Green of Gridling Park, near Pontefract, and John Foakes of Gray's Inn, for them to sell and divide the proceeds between the six younger children.<sup>3</sup>

Butler's will reveals nothing of his business activities, either in London or York, nor

does it refer to his connection with the Derbyshire iron trade which was to provide his eldest son with a career for the following thirty years. Indeed, his decision to invest in the industry in a county with which he seems to have had no other links remains unexplained, as does his partnership with a leading Shropshire ironmaster, George Matthews, who had been involved in the development of new works there since the 1750s.<sup>4</sup> The two men must obviously have known each other before joining forces but how is not clear. In April 1781, however, George Matthews of Broseley, iron merchant, and Joseph Butler of the city of York, gentleman, took a lease from Sir Henry Hunloke of Wingerworth of ironworks which had been in operation for nearly two centuries.<sup>5</sup> For Matthews this seems to have been his only involvement in the iron trade outside Shropshire; for Butler it must have been a purely speculative decision since he apparently had no practical experience of the industry. For the Hunlokes it marked the transition from charcoal to coke smelting at their works, a change paralleled by developments throughout the local industry at about this date.

A small iron industry had existed on the Derbyshire coalfield and the neighbouring district of west Nottinghamshire since the middle ages; blast furnace production began in the 1580s and throughout the seventeenth and eighteenth centuries about half a dozen furnaces contributed some ten per cent of the total output of pig iron in Britain. After 1750 local works began to close as the industry adopted coke smelting but two furnaces in the Rother valley, Wingerworth and Staveley, remained in use until the 1780s, by which date the earliest coke furnaces had been built on the coalfield.<sup>6</sup> Apart from a furnace at Morley Park near Belper and an initially unsuccessful venture on the banks of the Erewash Canal at Stanton by Dale, most of the developments of the 1770s and 1780s took place in the Rother valley, around the head of the Chesterfield Canal, where a local coalmaster, David Barnes of Ashgate, and a group of Sheffield ironfounders led by Ebenezer Smith built works at Stonegravels and Brampton Moor respectively.<sup>7</sup> Since 1751 the furnace at Wingerworth had been in the hands of Walter Mather of Kirkby in Ashfield, whose family had gradually built up an extensive business in the local iron industry from the mid-seventeenth century. Surviving accounts end in 1777 and the furnace may have stood idle until the new lease to Matthews and Butler in 1781, a year before Mather's lease would have expired. Mather remained in the industry and in 1783 took a lease of the ironworks at Staveley, which he rebuilt on modern lines and produced coke-smelted iron there until his death in 1806.<sup>8</sup>

The Wingerworth lease of 1781 included the existing charcoal furnace with similar arrangements for getting cordwood on the Hunloke estate as earlier leases, but also allowed the lessees to 'build and Erect any other Iron Furnace or Furnaces Buildings or Engines for the Casting of Iron or Iron Metal' on the estate; to build dwelling houses; and to get stone and clay for brick- and tile-making. It included the ironstone under much of the Hunlokes' land at Wingerworth, Woodthorpe and Tupton, and coal beneath most of the same area, excluding a colliery in Tupton already leased to Benjamin Rooth junior.<sup>9</sup> The lease was clearly drawn on the assumption that Matthews and Butler would abandon charcoal smelting and build a coke furnace, which they proceeded to do. Farey offers no date for the building of the coke furnace but the generally reliable survey of the iron industry nationally compiled in 1794 says 1780. Farey does, however, state quite clearly that the charcoal furnace remained in use until 1784, having been in operation, he adds, for more than 180 years.<sup>10</sup> This information almost certainly came from Joseph Butler, who could presumably recall his father's activities and had obviously heard of the great age of the furnace. Matthews and Butler evidently kept the charcoal furnace in blast until the success of the new works was assured. Ten years earlier Walter Mather had not only used Wingerworth to supply his forges at Bulwell and Makeney but was also selling pig in small quantities to a couple of

newly established foundries near the canal in Chesterfield.<sup>11</sup> This market for charcoal pig may still have existed in the early 1780s and so both furnaces remained in use.

That the business was established at once under the lease of 1781 is clear from the appearance of 'Matthews & Butler, Iron Masters' in a directory of 1783, but the following year the unexpired term of 18 years in the lease was offered for sale by auction at Christie's, when the works were said to comprise two newly erected coke furnaces with a steam blowing engine 'upon the most approved Plan, and now in compleat Repair, capable of making from Forty to Fifty Ton of Iron Weekly, which Pig Iron has been found by Experience to make Bar Iron of the first Quality'. Interestingly, even at this date, the charcoal furnace was still listed as part of the property, although there is no indication as to whether it was in blast.<sup>12</sup> The occasion for this sale, and its outcome, are not wholly obvious. The elder Joseph Butler survived until the end of 1785 but it is possible that the partnership was brought to an end by the death of George Matthews, which has not been traced. After his father died, the younger Joseph Butler took over his interests at Wingerworth and so it seems likely that the sale in 1784 proved abortive, with the lease remaining in Butler's hands. Many years later the son dated his connection with the iron industry from 1785 when, if the age reported at his burial is correct, he was 22; these dates are consistent with his father's statement that he was already 21 in November 1785.<sup>13</sup> Whereas the elder Butler's involvement in the furnaces at Wingerworth was probably merely speculative, his son's approach was quite different. While still in his twenties he greatly enlarged the business, which at its height was probably the largest of its kind in the Rother valley after the Smiths', who at one time had three separate smelting plants; from what Farey says Butler appears to have been more interested in technical innovation than any other ironmaster in the Chesterfield district.

Since Butler's inheritance from his father was largely embodied in a *pre mortem* settlement we do not know what capital he himself had available in 1785. The furnace and ironstone at Wingerworth and Tupton were leased in return for a royalty of 5s per ton of pig and did not tie up capital in plant. Similarly, the coal mined from a colliery at Lings in the neighbouring parish of North Wingfield was leased at £80 an acre.<sup>14</sup> Fresh capital probably became available following Butler's marriage to Sarah Layland at Chesterfield, where both he and his bride were then living, in November 1786. Sarah was the eldest daughter of Thomas Layland, Chesterfields's first organist, and Hannah Staniforth, and appears to have been heir to a modest freehold estate in Sheffield, Barlborough and Catcliffe (near Rotherham), which early in 1789 provided security for a loan from William Harding of Chesterfield. Mrs Butler died in November 1789, having born her husband a son, Joseph, in 1787 and a daughter Elizabeth the following year. She was able to dispose of her own inheritance by will, leaving the property to her husband in trust for the education of their children. This arrangement left Butler with the use of the property, which included Cross House at Barlborough and other land later used as security for mortgage advances.<sup>15</sup>

In 1787 Butler began to expand his business by taking over a foundry on the banks of the Chesterfield Canal at Stonegravels which had been established in the early 1770s (a few years before the canal was opened) by William Harding, the owner of the site. Deeds of 1789, 1790 and 1795 describe Butler as an ironfounder of Chesterfield; others of the latter year use the phrase 'of Stonegravels, gent.', where he was presumably living by this date.<sup>16</sup> The foundry would have provided a convenient outlet close to the canal for pig produced at Wingerworth, where there was another foundry in Farey's day.

Within a few years of his first wife's death Butler married another woman named Sarah, about whom nothing is known; their first child, a daughter named after her mother, was baptised at Chesterfield in April 1794.<sup>17</sup> In 1795 Mrs Butler joined her

husband in mortgaging property at Ankerhold (which she may perhaps have brought to Butler on her marriage, since it does not appear on any previous occasion), together with a moiety of Sarah Layland's estate and a forty-eighth share in a lead-mine at Brightside in Bakewell. This mortgage raised £500, even though the Ankerhold property was already encumbered with a similar advance of £1,300 from Michael Shaw of Dronfield. The lenders in 1795 were Jarvis Radley, a Chesterfield mercer, and John Sutton, a minor landowner from Heanor. In 1800-1 Butler was involved in other transactions in which the property at Barlborough was used to secure further sums from Radley and Sutton and from a Nottingham surgeon named John Wright (not the better known banker of the same name). By this date Butler was also involved with a local Chesterfield banker, Richard Gillett, who was presumably a further source of funds.<sup>18</sup>

The main outlet for this additional capital was probably the purchase of a freehold estate at Killamarsh near the canal several miles below Chesterfield, which in 1795 had been sold by Sacheverell Pole of Radbourne to William Cooper of Sheffield and John Harrison, the latter an ironfounder and one of the original partners at the blast furnace nearby at Renishaw. Cooper and Harrison bought the former seigneurial cornmill from Pole, which they rebuilt as an ironworks, apparently a foundry, since the two are described as co-partners in the business of ironfounders. In 1800 the property was sold to Joseph Butler, who by 1804 had erected a forge and rolling mill there, similar to those built elsewhere in Derbyshire in the same period as the finery-chafery method of refining pig gave way to Cort's puddling process. There was also a chainmaking shop. In 1804 Butler used the forge property, on which he must have spent a considerable sum, as security for what was probably his largest single mortgage, £4,000 borrowed from John Dutton, described as a captain in the Derbyshire militia and the son of Thomas Dutton, the Chesterfield banker. By this time Butler had moved to Killamarsh to live at Forge House, which he may possibly have built, and where over the next few years he and his second wife brought up a large family.

With the construction of the forge Butler's enterprises had reached their greatest extent and it is in this state that they were reported on by John Farey. At Wingerworth, where the furnaces were built against a hillside on a rather cramped site close to Tricket Brook, the only additional plant was a foundry. From the works a plateway ran south for about a mile across old bellpits to ironstone mines at Woodthorpe. This was the line laid in 1788 where L-section rails were first used above ground. Iron from Wingerworth would have travelled by road to Chesterfield to the foundry at Stonegravel or by canal to the forge at Killamarsh. Coal for the ironworks was mined at Lings, coked at the colliery and then carried by another plateway to a wharf at Ankerbold, from where it was taken by road to the furnace at Wingerworth or to the head of the canal. Butler had a second colliery at Norbriggs, on the Devonshire estate near Staveley, which he took over from the Chesterfield Canal Company in 1797. It was linked to the canal initially by a waggonway with wooden rails from the colliery to a wharf at the end of a branch canal. Butler was presumably responsible for re-laying the track with plate-rails. Finally, Butler had a quarry at Ashover, the nearest source of carboniferous limestone to the coalfield, which supplied a kiln at Woodthorpe, from where lime was sold to local farmers and used as a flux at Wingerworth furnace. His property by this date also included at least two farms, one at Norbriggs, presumably on the Devonshire estate near the colliery, and the freehold estate at Cross House, Barlborough.<sup>20</sup>

Butler linked his various enterprises between Tupton and Killamarsh by a simple but apparently locally unique system of running the same wagon bodies on both plateway and road chassis. Coke made at Lings was brought to Ankerbold wharf by tram, transferred to road vehicles and taken either to Wingerworth or Chesterfield. At the

canal wharf the bodies were lifted from their wheels and put on boats to go to Killamarsh forge where the same process in reverse enabled them to reach their destination without any unloading. Similar wagons were used to bring charcoal burned in Hardwick Woods at Wingerworth to the canal and thus to Killamarsh. The idea of demountable bodies for tramway wagons was not new — John Curr's underground plateways at Sheffield used the same system — but Butler's adoption of the technique attracted Farey's admiration. By the beginning of the nineteenth century, Butler's railways would in fact have seemed slightly old fashioned, since they were built to the same narrow gauge (20 inches) as Curr's prototype, whereas by this date the influence of Benjamin Outram and others had led to the adoption of a gauge roughly twice that on most surface plateways, as well as correspondingly heavier rails. Butler's rails weighed only 28lb per yard, much less than 36-40lb recommended by Outram, and the wagons must have been smaller than those used on later lines. A rail recovered from the site of Butler's furnace at Wingerworth is similar to Curr's published designs.<sup>21</sup>

Butler's early use of plate rails was only one of several innovations which commended him to Farey as an 'Ingenious Collier and Iron-master'. Other practices of which he approved included the use of temporary tramroads underground on which trams carrying candles could be run into workings in which damp was suspected without risking miners' lives; his care in draining farm land above collieries in order to reduce the risk of flooding; and his employment of asses on tramways, which he found better able to withstand damp underground and more capable than horses on the surface. Like other ironmasters of the period, Butler was also a farmer, and Farey commented favourably on his husbandry. A water-powered hay and straw cutter at Norbriggs used to produce fodder for his farm and colliery horses was remarked on, although the type of roller employed at Norbriggs was inferior to others Farey saw elsewhere, as 'that intelligent Farmer' himself admitted. At Killamarsh compost from the banks of the Rother was used to manure Butler's land, while at Swathwick, near Wingerworth, bonemeal crushed under the forge hammer at Killamarsh was applied to old leys. Butler's herd of Alderney cattle at Killamarsh attracted comment, as did his reputation as a horsebreeder and keeper of racehorse studbooks, 'superior to those of any person, who does not wholly devote their time to this subject'.<sup>22</sup>

Butler also features in Farey's report as one whose views coincided with his own practical, utilitarian ideas and were therefore suitable for inclusion. He was among those who had 'distinguished themselves in setting out and undertaking improved Roads'; his efforts to have clauses inserted into the Act setting up the Ashover to Tupton turnpike in 1808 concerning the width of wheel tracks of vehicles used on the road were also mentioned. Butler was praised for encouraging the parish authorities at Barlborough to mow roadside verges to keep down weeds. On canals, Farey recorded Butler's view that the companies should encourage the movement of coal in summer and autumn by allowing it to be bonded at its destination until sold in the winter, when demand would be highest and the canals possibly stopped by frost. His complaints about the management of the summit pound on the Chesterfield Canal near Killamarsh and delays in navigating the long tunnel at Norwood appear, as do his views on the evils of canalside pubs, which Butler (and doubtless also Farey) regarded as 'useless, and a great nuisance', which he had attacked at Killamarsh and Norbriggs.<sup>23</sup>

The picture that emerges from Farey's report is of an active and innovatory coal and ironmaster also interested in contemporary improvements in farming, who by the end of this period was among the senior figures in the local iron trade. It was Butler, for instance, who was asked by a Chancery master in 1813 to value the Butterley Company, when he stated that 'for 28 years last past he had had great experience in the Business of an Ironfounder & is well acquainted with the value of Iron Foundaries and hath been

frequently to survey and value Ironworks'. He also took an active interest in the Sheffield meeting of ironmasters, a body dominated by south Yorkshire producers from the time of its establishment in 1800. Butler entered the society in September 1801 and attended fairly regularly until January 1818, when he was in the chair, as he had been occasionally before. His son Joseph attended twice in 1815 and 1816.<sup>24</sup>

By the beginning of 1818, however, Butler's enterprises, described in such glowing terms only ten years earlier, appear to have been in considerable difficulty. The end of the war in 1815 sent an immediate shock through the entire iron industry and those who suffered most were small men in the Midlands with only a single works who had expanded rapidly during the war-time boom on borrowed capital, taking on commitments that they were unable to meet after the coming of peace and recession. In Derbyshire several furnaces went out of use almost at once and those that continued did so with difficulty. The two largest Derbyshire producers, the Smiths at Brampton and the Butterley Company, both complained about conditions after 1815 but were able to weather the storm (although the Smiths' business eventually collapsed in the early 1830s). Butler, who had run his affairs single-handed, had far less chance of surviving than the bigger companies, especially Butterley, where one of the partners was the Nottingham banker John Wright.<sup>25</sup>

The first of Butler's major activities to close was the furnace at Wingerworth, which appears to have been blown out in 1816. The site was not re-occupied and ironsmelting disappeared from the Hunloke estate for the first time for more than two centuries, until the building of the North Midland Railway encouraged the establishment of a new Wingerworth Ironworks at Birdholme in 1840.<sup>26</sup> The foundry at Stonegravels was sold by Mary Harding, the widow of William Harding its original builder, to William Smith of Field House, Brampton, a partner at the Griffin Works, in 1815. Smith was already the tenant but the conveyance mentions two other occupiers (Richard Hudson and Thomas Hardy) between Butler and Smith, suggesting that the former had not been there for some years.<sup>27</sup> The colliery at Lings with its tramroad to Ankerbold probably also closed soon after the end of the war. At Norbriggs, where Joseph Butler junior had established a shovel-making business in the 1810s whose customers included the Butterley Company, the Butlers gave up their colliery in 1821, which the following year was leased to G.H. Barrow, by this date proprietor of the Staveley Ironworks elsewhere on the Devonshire estate, one of the works to survive the recession.<sup>28</sup> A year after this the property at Barlborough was sold and in 1823 'Killamarsh House', presumably identical with Forge House, was offered to let on a 21 year lease together with the forge and 50 acres of land. The works itself was described as dilapidated and in need of repair or rebuilding. Finally, in 1826, the freehold estate at Ankerbold and Tupton, consisting of a house, four cottages and about fourteen acres of land, was sold by auction.<sup>29</sup>

Butler's difficulties seem to have stemmed largely from his over-reliance on mortgage finance. In February 1817, after the Wingerworth furnace had been given up, he was actually able to discharge a substantial mortgage to the Chesterfield & Mansfield Bank on the property at Ankerbold, Tupton, Barlborough and Killamarsh (including the forge but not Forge House), but a month later took out a fresh mortgage with William Houldsworth of Farnsfield, Notts. on which he subsequently defaulted. In November 1818 Houldsworth began proceedings in Chancery to recover this debt and in July 1820 obtained judgement for £2,818, of which £2,316 was unpaid principal and the remainder interest. He had still not received the money in March 1821. It is not clear whether the plaintiff was connected with Mrs Houldsworth who replaced Butler in the Barlborough land tax assessment of 1824 as owner of Cross House; if she was his widow then it is possible that the debt was settled by the sale of the Barlborough estate.<sup>30</sup>

Although he had evidently been retired from business for some years by this time,

Butler's affairs were only finally settled in 1829 by the sale of the Killamarsh estate to discharge the mortgage of £4,000 taken out in 1804 with John Dutton, on which the principal and interest of £876 remained unpaid, and partly to discharge another mortgage on the Killamarsh property taken out in 1818 with the Duke of Devonshire, on which £2,864 was then owing. Sir George Sitwell of Renishaw agreed to buy the forge for £6,000, enabling the Dutton family to recover their loan in full, with a further £1,124 available for part-repayment of the Devonshire mortgage. The balance owed to the duke Butler agreed to pay from other funds. By the time the sale took place the forge was in the hands of John Bird and Butler had returned to his native Yorkshire to live at Ackworth, three miles south of Pontefract. A few years later he came back to Killamarsh, where he was buried in July 1837 at the age of 74, thus bringing to a close a long and eventful life. None of his sons seems to have remained in Derbyshire and by this date all his business activities had long ended.<sup>31</sup>

Joseph Butler's career makes an interesting case-study of one of the unsuccessful ironmasters of the early coke era in Derbyshire, a man who seems to have come into the industry largely by chance: his father happened to invest in a new furnace a few years before his death. During the prosperous years of the Napoleonic War Butler was able to expand and for a time was among the leading ironmasters in the district. Although it is impossible to see exactly how he financed this growth (much less where the products of his works were sold) his career emphasises the point which has emerged from many similar studies that it was easy enough in good times to raise capital on security of even quite a modest estate. Of his various works, only Killamarsh was freehold, the rest were leased and thus did not tie up capital. Of his freehold property, Cross House at Barlborough was certainly an inheritance and the Ankerbold estate may have been also. Mortgages, a cheap and accessible source of funds at a time of rising prices, were transformed into a source of difficulty as boom turned to slump and a small, single-handed entrepreneur had fewer reserves than the larger partnerships on which to fall back. The enterprise, which had attracted such glowing comment from that shrewd observer, John Farey, collapsed within a few years, leaving little behind in the way of either documents or buildings.<sup>32</sup>

## REFERENCES

- 1 J. Farey, *A general view of the agriculture and minerals of Derbyshire* (1811-17), iii, 288; the elder Butler appears in the acknowledgements to the first two volumes of Farey, the son in the first only. Cf. M.J.T. Lewis, *Early wooden railways* (1970), pp.293, 316-19.
- 2 Details from street directories and York newspapers kindly supplied by the York Archives staff; the deed of 1788 is in the East Riding Register of Deeds (Humberside Record Office, Beverley), BN/12.
- 3 Public Record Office, PROB 11/1138, ff.150v-154.
- 4 B. Trinder, *The industrial revolution in Shropshire* (Chichester, 1973), p.63.
- 5 Derbyshire Record Office (DRO), D2690 (an unlisted collection of leases relating to Wingerworth ironworks).
- 6 The fullest account of this period in Derbyshire is an unpublished paper of my own on 'The charcoal iron industry in the East Midlands, 1580-1780'.
- 7 See, in addition to note 6, F.J. Stephens, 'The Barnes of Ashgate: a study of a family of the lesser gentry in north east Derbyshire' (Nottingham M. Phil. thesis, 1980), pp.112-15; P. Robinson, *The Smith of Chesterfield. A history of the Griffin Foundry, Brampton, 1775-1833* (Chesterfield, 1957).
- 8 DRO, D2690 (leases of 1751 and later); the accounts are Sheffield City Library, SIR 30 (an account book later used at Staveley but containing material from the Wingerworth charcoal furnace); cf. S.D. Chapman, *Stanton and Staveley. A business history* (Cambridge, 1981), pp.15-26.

- 9 DRO, D2690 (lease of 1718).
- 10 Farey, op. cit., i, 396; Birmingham Reference Library, Boulton & Watts MSS, Muirhead II.
- 11 Sheffield City Library, SIR 30.
- 12 *Bailey's Western and Midland Directory* (1783), p.215; the sale notice (very kindly brought to my attention by Cliff Williams) was published in the *Derby Mercury*, 11 March 1784.
- 13 DRO, D503, 2/30a (Chancery affidavit, 1813); Butler was buried at Killamarsh (Derbys), where the registers remain in the custody of the incumbent. For the father's death and his will see notes 2 and 3.
- 14 DRO, D2690 (lease of 1781).
- 15 Details from Chesterfield parish register kindly supplied by Mrs Barbara Bestall from the card index compiled by her late husband's extramural students. The deed of 1789 and other material to do with the estate in Barlborough etc cited below was seen by myself and Mr D.V. Fowkes in 1973 in private hands; a survey list is in the DRO but the present whereabouts of the documents is unknown. A deed of 1795 in this collection refers to the late Mrs Butler's will but I have been unable to trace this either at Lichfield or in the PCC.
- 16 The deeds referred to by date are from the collection cited in note 15; for the foundry see Chesterfield Town Hall, Town Clerk's Dept deeds Box 121, Packet 17A, which contains deeds relating to the Harding family's property on Holywell St and nearby, including the foundry. The *Derby Mercury* of 22 August 1793 reported the prosecution of Joseph Butler 'of Newbold, gent.' for failure to do statue duty; Stonegravels is in Newbold township.
- 17 See note 15 (Chesterfield parish register).
- 18 See note 15 (deeds in private hands).
- 19 The Killamarsh deeds are in DRO, D1000, Box 2 (unnumbered), which also contains a map of Butler's property there in 1806; cf. also a deed of 1794 among those cited in note 15 listing the original partners at the Renishaw furnace. See note 13 for Killamarsh parish register, which records the baptisms of Butler's family by his second wife. Farey, op. cit., iii, 488, 490 lists plant at the forge.
- 20 This overall view of Butler's activities has been culled from a page-by-page study of Farey, op. cit., which lacks a name index. For Norbriggs see also C. Hadfield, *The canals of the East Midlands (including part of London)* (Newton Abbot, 2nd ed. 1970), p.35; the *Derby Mercury*, 16 December 1797, advertises the colliery to let and Butler was first assessed to land tax there in 1799.
- 21 Farey, op. cit., pp.295-7; cf. Lewis, op. cit., pp.316-19, and P.J. Riden, 'Tramroads in north east Derbyshire', *Industrial Archaeology*, VI (1970). The rail found at Wingerworth is now in Derby Industrial Museum.
- 22 Farey, op. cit., i, 333-6, 351; iii, 161-2 (coal mining); also ii, 19, 46, 57, 60, 115, 132, 164-5, 185, 449-52, and iii, 16, 25, 79, 156-7, for Butler as farmer.
- 23 *Ibid.*, ii, 193; iii, 242, 261-2, 292-3, 326-7.
- 24 DRO, D503, 2/30a; Sheffield City Library, Jackson 1297 (and cf. Farey, op. cit., iii, 655-6).
- 25 P. Riden, *The Butterley Company 1790-1830* (Chesterfield, 1973), p.16; P. Robinson, *Smiths of Chesterfield*, passim.
- 26 The date 1816 has been inferred from land tax assessments (DRO, Q/RL); cf. D.G. Edwards, *The Hunlokes of Wingerworth* (2nd ed. 1976, pp.12-15).
- 27 See note 16 for deeds for the Stonegravels foundry and cf. Robinson, *Smiths of Chesterfield*, pp.43, 86.
- 28 No firm evidence for a closure date at Lings has been found; for Norbriggs shovel-works see DRO, D503, Furnace Ledger C, f.410, and S.L. Garlic, 'Some notes on the Dudleys of Norbriggs and the Norbriggs shovel works', *Derbyshire Miscellany*, II (1963), 407-10. For the colliery there see land tax assessments, plus E. Sorby, 'Coal-mining near Sheffield from 1737 to 1820', *Transactions of the Institution of Mining Engineers*, LXV (1922-3), 92, and G.G. Hopkinson, 'The development of lead mining, and of the coal and iron industries of industries of north Derbyshire and south Yorkshire' (Sheffield Ph.D. thesis, 1958), p.321.
- 29 Barlborough: sale deduced from land tax assessments; Killamarsh: sale notice in *Sheffield Independent*, 13 December 1823, kindly drawn to my attention by the late Vincent Hopkinson of Killamarsh; Ankerbold: similar notice in the *Derby Mercury*, 16 August 1826, located by Cliff Williams.



- 30 The mortgage deeds are among those in the collection cited in note 15, as are two Chancery orders; there is a Master's Report in PRO, C 38/1204, 13 July 1820, and affidavits in C 31/384, 389, 400. I have been unable to locate the case among contemporary Chancery proceedings (C 13) and there are no exhibits in C 103-114 or C 127-129. Land tax assessments are in DRO, Q/RL.
- 31 DRO, D1000 (deed of 1829, in which Butler was said to be of Ackworth, Yorks); cf S. Glover, *Derbyshire Directory* (1829), for the forge in that year. Butler's burial is recorded in Killamarsh register (cf. note 13) but his family appear not to have availed themselves of the facilities for death registration introduced a few weeks earlier. Joseph Butler junior does not appear in any of the places with which his father was associated in later directories.
- 32 The site of the furnace at Wingerworth was subject to opencast coalworking in 1973, during which rescue excavation located the base of a demolished blast furnace and some other structures; a tram rail was also found (note 21); see P. Riden, 'Excavations at Wingerworth ironworks', *Bulletin of the Historical Metallurgy Group*, VII (1973), p.48 (no further report has appeared and the site has now been landscaped). At Tupton, no trace remains of Butler's colliery or tramroad. At Norbriggs a wharfinger's house can still be seen at the end of the branch canal to which the tramroad from the colliery ran but the rest of the area has been much altered by opencast working. At Killamarsh the forge is now occupied by Messrs Ross & Catherall, whose buildings are entirely modern.