THE LATER GELLS AND THE DECLINE OF THE LEAD TRADE

Ron Slack

Abstract: The losses suffered by Sir John Gell during the Civil War of 1642-1646 caused financial difficulties for his successors, exacerbated by the loss of the lease of lot and cope. Mining ventures in the late 17th century were unprofitable for the family, and as the industry itself declined in profitability there was a a gradual decline in the importance of lead to the Gell family fortunes and in their position in the lead industry. the high point of which came at the outbreak of the Civil Way in 1642.

INTRODUCTION

At the outbreak of the Civil War in 1642 the fortunes of the Gells of Hopton were at their height. Their activities in the lead industry, begun by a John Gell in the early 16th century, greatly extended by his son Ralph, and energetically furthered by Ralph's sons and grandsons, had brought them wealth and social advance (Kiernan 1989). In 1642 Ralph Gell's grandson, John, was the chief barmaster of the Wirksworth Wapentake, lessee of the rights of lot and cope. He owned two smelting mills in Wirksworth and shares in many of the Wirksworth mines. Among his property was the area adjacent to Hopton called Griffe Grange which included lead mines as well as sheep grazing. Gell owned the mineral rights in the Griffe mines. In addition to his Wirksworth interests he leased a third of the tithes in three High Peak parishes. His annual income from lead and from the rents from property bought with lead money was at least £2,500.

Gell used his wealth to advance a political career in the king's service, most notably as High Sheriff in 1635, when his year of office coincided with the first year of the king's imposition of Ship Money (Slack 1997). As High Sheriff Gell was responsible for collecting Ship Money from the county's gentry. He proved an assiduous collector of this very unpopular tax. His wealth, his record of service and the king's wish to keep him faithful in a conflict with Parliament which by then had become inevitable, earned Gell a baronetcy, awarded early in 1642. However, when the war came later in the year Gell used his wealth and influence on Parliament's side. He sought and acquired a commission as colonel to raise a regiment in Derbyshire, garrisoned Derby and took control of the county.

Sir John Gell fought an ultimately successful struggle against Royalist encroachment, serving without pay and using his own resources to supply the deficiencies in the Parliamentary financing of the war. The lead trade continued during the war and Gell maintained his joint lease of lot and cope with John Milward of Snitterton, in spite of Milward's own commission as a colonel in the Royalist forces. In 1644 Gell protected the family fortune from any subsequent disaster to himself by transferring the estate, including the lead interests, to his son John. This move did in fact save the Gell estate from seizure after the war, when Gell fell foul of the Commonwealth government and his possessions were declared forfeit.

PEDIGREE of the Gell Family

Sir John Gell (1593-1671)

Sir John Gell (1613-1689)

Sir Philip Gell (d.1719) | Francis Gell | Katherine Gell m. William Eyre | Temperance Gell (d.1730)

John Eyre (1686-1739) (assumed Gell name 1730)

Philip Gell (1723-1795)

Philip Gell (1775-1842)

JOHN GELL II

At the end of the war the younger Gell retained his father's lease of the mineral dues, still owned the Upper and Nether smelting mills in Wirksworth, and maintained a wide share ownership in mines. He invested in several of the soughs which followed the completion of the Dovegang sough in draining the Wirksworth mines and played a prominent part in the running of the industry. The family, however, was unable to recapture the financial power enjoyed by Sir John Gell before the Civil War. Sir John's losses during the war and his failure in many attempts to persuade Parliament to pay for them (he had been awarded only £3,000) meant that the next two generations of the family were always short of capital. In 1661 the younger John Gell lost a legal battle to retain the mineral rights in Wirksworth Wapentake which his father and he had held since 1638 (Slack 1998). This further loss of income accentuated the family's difficulties, and Gell and, later, his son both used family connections to raise money. In 1664 he borrowed £1500 from Robert Eyre of Highlow, father of his daughter's husband William, and surrendered the family's Raventor, Bayleycroft and Lyddow Flats mines in Wirksworth and the mines on Cromford Moor and in the Dun Rake, for the duration of the loan, to two men who were standing as sureties for it (D258/28/2/11).

JOHN GELL II, ARBITER

In spite of the family's reduced fortune Gell continued to be influential in the running of the industry in the Wirksworth Wapentake. One indication of this is his role as arbiter in mining disputes. While he was still chief barmaster, in 1658, he was one of three arbiters settling a dispute between one of his deputy barmasters, John Sladen, and a certain Thomas Smedley (D258/10/86/44). Smedley had called Sladen a thief, coming to rob his wife and children, and Sladen demanded damages and a retraction. Gell and his two colleagues awarded Sladen damages of £2-10s, and instructed Smedley to acknowledge in writing that he had wronged Sladen and that his accusation was untrue. In 1665, after he had lost his official position in the industry, he settled a territorial dispute between two mining groups, awarding one the sum of £24 (D258/10/86/40). In a similar dispute in 1667 he and the Barmote Court steward, the Ible lawyer George Hopkinson, instructed six partners in a mine in the Dovegang to pay a total of £20 for trespass in mines owned by three gentleman owners, Sir Edward Heath, Edward Manlove and Henry Wigley, the losers to pay in proportion to their shares in the mine (D258/10/86/42). Two named members of the Barmote jury were instructed to mark the parties' veins underground. In 1668 two of his neighbours at Carsington, Robert Hayward, gentleman, and William Taylor, miner, "by mutuall consent bound themselves in twenty pounds a piece to stand to & abide the order, doome & award of mee John Gell of Hopton" in settling their differences (D258/10/86/38). As in the previous year's case the gentleman won: Hayward was awarded £4-13-4d.

JOHN GELL II AND THE SOUGHS

One of the earliest of the post-war soughs, driven to dewater the mines of Wirksworth town and the surrounding orefield, was the Raventor sough, driven in 1659 to drain the Raventor mine, in which Gell had shares. Gell seems, from the surviving accounts and agreements, to have carried on his lead interests in partnership with his wife. A set of accounts for the mine in 1655 is endorsed "Mrs Gells accts for Raventor" (D258/10/90) and accounts for a second mine, Grey Mare Arse, are also in her name (D258/35/50/70). When the family mortgaged Raventor and the other mines in 1664 it was Katherine Gell whose name was on the agreement.

John Gell's biggest soughing venture was the Baileycroft sough, driven between 1667 and 1672 (Rieuwerts 1980; Slack 1998). He had a sixth share and managed the operation. Gell was the link between the soughers and the main backer, Josiah Primate, a London merchant and neighbour of Gell's father, Sir John, who died in 1671. The sough generated disputes with the miners over payment of composition ore, with the Primate family over payment of their share of this ore, and with a Wirksworth miller over loss of water power diverted from his mill by the sough. The sough was closed for a time during this last quarrel and reopened in 1675 after compensation to the miller had been agreed. Gell certainly received composition ore from the mines drained by the Baileycroft sough, but it is unlikely that he made much profit from his investment. The net costs incurred between 1667 and 1672 were £606-11-4d, making Gell's expenditure £101-1-10d (Rieuwerts 1980). The incomplete accounts record Gell's share of composition ore sold in the year 1672-73, before the closure of the sough, as £35-3-2d (D258/7/20/7).

The longest and most effective sough started in the seventeenth century was the Cromford Sough (Rieuwerts, 1980). Known when it was started in 1673 as the Longe Sough, this was over a hundred years in the driving and it was the strong, continuous flow from its tail that was to persuade Richard Arkwright to set up his cotton mill in Cromford almost a hundred years later, in 1771. The sough was originally intended to drain the mines of Ashcroft Vein on Cromford Moor and, driven in an undulating course to keep in soft shale, reached Dun Rake, a quarter of a mile to the south of the village, in 1680. The Gells' involvement during this stage of the sough's progress was as one of the mine share holders who signed the agreement with the soughers in 1676 (D258/23/7/2).

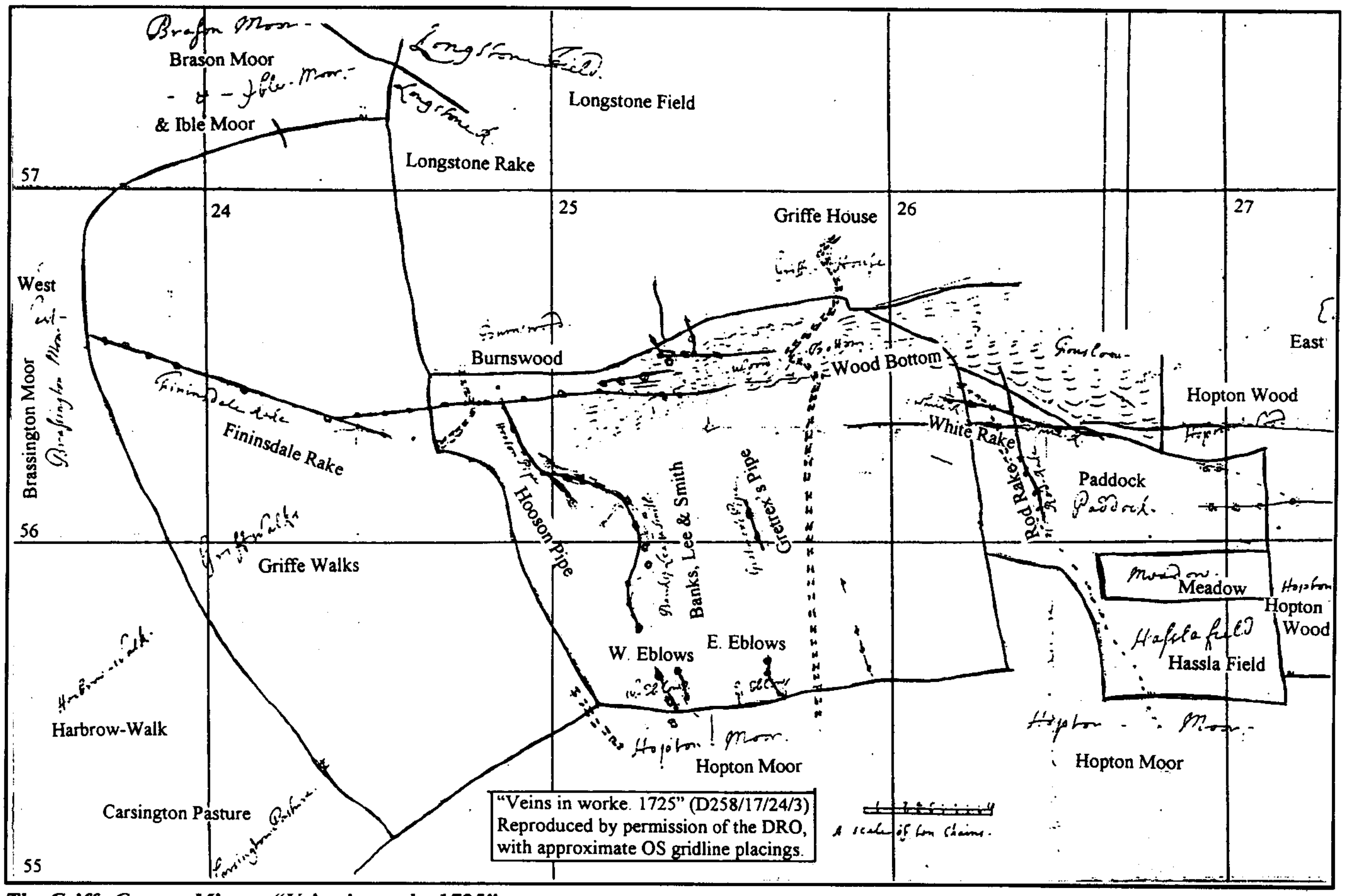
A short distance beyond Dun Rake the soughers left the shale and turned south-west, through limestone. In this section, as far as Tinley Vein, the much more difficult rock prompted the use of gunpowder: "for carrying on the Sough so vast a way thro' Rocks of limestone which could not be worked but by boring holes and blasting with Gunpowder" (BM Add MSS 6681 f396). In addition to the problem of blasting a way through hard rock the soughers were plagued by poor ventilation: "great obstructions were occasioned by the want of wind in the Sough, which caused damps and killed the miners, and to carry on the Sough they were forced very often to sink Pitts or Shafts at the expense of £100 to £200 a shaft". After an expenditure of £20,000, Tinley Vein was reached by 1696 and at this point operations were suspended.

JOHN GELL II AND THE GRIFFE GRANGE MINES

John Gell's personal ownership of the mines in Griffe Grange was confirmed during the same Duchy Court proceedings which rejected his claim to the lot and cope in the Wirksworth Wapentake (BM Add MSS 6686 ff136-142) and Griffe remained in the hands of his son and his successors at Hopton throughout the 18th century. The amount of ore mined at Griffe varied but the annual average between 1659 and 1691 was about 250 loads, and incomplete figures up to 1710 suggest a decline after the turn of the century. The Gells ran the Griffe liberty in the same way as the Wapentake was administered, following traditional mining practice and often employing one of the deputy barmasters from the Wapentake: in his evidence to the Duchy Court considering John Gell's right to the Griffe mining dues, an Aldwark miner called Andrew Slack testified that he paid the lot on lead ore mined in the Griffe to William Blackwall, currently the Brassington barmaster (BM Add MSS 6681 f508). Their income therefore consisted of a cope payment of 6d per load from ore buyers and the current price for the lot ore collected from the miners. As an example, lot and cope from the Griffe mines during the second quarter of 1687 came to £11-12-6d.

Griffe Grange lead mining in loads & dishes (D258/20/7/1-40)

	Ore	Lots
1658 (Jul-Dec)	119-3	14-5
1659	292-8	37-0
1660	118-3	14-5
1661	49-0	5-8
1662 (Mar-Dec)	58-4	6-3
1663 (Jan-Jun)	37-0	4-4
1681 (Jan-Mar)	114-6	14-4
(Oct-Dec)	169-5	21-7
1682 (Apl-Dec)	553-7	70-2
1683	376-3	59-1
1684	238-4	29-5
1685	232-7	29-1
1686	231-0	28-6
1687	219-4	31-3
1688	143-5	17-6
1689 (Oct-Dec)	47-0	5-5
1690 (Apl-Dec)	99-6	12-5
1691	157-0	24-1
1692 (Oct-Dec)	24-0	3-4
1693 (Jan-Mar)	24-0	3-3
1702-1710	668-0 (approximation calculated from cope payments)	



The Griffe Grange Mines - "Veins in worke 1725".

SIR PHILIP AND FRANCIS GELL

The lead industry had always been characterised by recurrent periods of low activity, and one of them came in Wirksworth at the turn of the seventeenth century, at a time when most of the veins dewatered by the soughs had been mined and before the Cromford Sough was restarted. The fortunes of the Gell family followed the ups and downs of lead. As well as the baronetcy for his eldest surviving son Philip, the estate which Sir John Gell II left in 1689 included shares in lead mines on Carsington Pasture and in the Wirksworth, Cromford and Middleton liberties (D258/7/20/25). However, the shares were spread among Sir Philip, his brother Francis and their sisters Elizabeth and Temperance. They ranged between sixths and ninety-sixth parts, and many of the mines were unproductive. Immediately after succeeding to the estate Sir Philip was seeking ways to raise enough money to pay off debts left by his father, who in 1678 and 1687 had put parts of it in trust to William Eyre and other relatives, the rents to be used to pay off the debts (D258/40/2). After protracted negotiations over possible loans of £2000 or £1000, carried on by his agent in London, Sir Phillip wrote in 1692 that "I think it better to take but one thousand at present, for if it be called for again one is easier to pay than two" (D258/24/53/13).

His brother Francis, in financial straights and beholden to Sir Philip, claimed in 1693 to have a friend "that will furnish you with £7000 att 5 percent on the mortgage of my father's estate" (D258/24/50/30). Francis, who was a London merchant, had accepted an annuity of £100 with an eventual payment of £2000 in return for his share of the trust property and the rest of the landed estate (he kept his share of the mines and soughs) (D258/24/54/5). Desperate for money, he sold his annuity, defaulted on the payment and was bailed out by Thomas Bagshaw in 1697 (D258/13/74). Bagshaw, of Ridge Hall, Chapel-en-le-Frith, currently living in Bakewell, was a lawyer. He had great influence in the lead industry, managing to hold the office of steward in both the High Peak Hundred and Wirksworth Wapentake at the same time as being a lessee of the lot and cope in the Wapentake. This combination of duties was eventually to produce a petition from Francis Gell and others asking the Duchy of Lancaster to relieve him of the barmastership which, it was alleged, made it impossible for him to conduct the barmote courts fairly (BM Add MSS 6681 f227). It was Bagshaw who organised the miners' defence against the bill brought in 1701 to enforce payment of tithes to local clergymen. The bill was presented by Nathaniel Boothouse, vicar of Carsington, who complained in a letter to Sir Philip Gell that the opposition was using "sacrilege, perjury and lying". Gell must have read this diatribe against a man who was both his lawyer and his creditor with some embarrassment. Boothouse described a miners' petition against his bill, and a printed handbill arguing their case, "both drawn by TB", as "all one continuous falshood", and "saw TBs cloven foot" in another petition. Bagshaw's emissaries travelled the county, collecting signatures, and lodged in London, to lobby the Parliamentary Committee considering the bill (Slack 1998).

SOUGHING

The original share holders in the Cromford Sough had sold their shares to the earl of Yarmouth in 1687 and 1688, during the long and difficult drive through the limestone, and in 1692 Francis Gell made what proved to be an expensive error when he bought the earl's shares in the sough and in mines in the area (BM Add MSS 6677 ff203-219). In the following year Gell undertook a second soughing project: the Hannage Sough, intended to dewater all the Wirksworth mines. Gell drew up the usual articles of agreement with the proprietors of the mines to be drained by the sough (BM Add MSS 6684 ff52-57). The sough was to be driven from Sir Philip Gell's Middle Mill and the mine proprietors were to pay composition for ore got below the level of the standing water. Hannage sough was driven in shale and had reached the Well Grove vein by 1696, when, as in the case of the Cromford sough, work was abandoned. The soughers had difficulty in obtaining the composition ore to which they were entitled and, according to a letter written in 1702, the reason for the halt, and subsequent blocking of the sough, was to persuade the recalcitrant owners of the mines drained by the sough to pay up (BM Add MSS 6681 f304-305). The letter describes the tolerance of the people of Wirksworth when their water supply was damaged by the sough, and the preparation by the mine owners for the sough's arrival. The result of blocking the sough was, according to the writer, "the leaving in pieces some mynes prepared for it and bursting itselfe in some places". Gell and his partners brought several actions to claim their composition ore, and obtained verdicts in their favour in 1697 (BM Add MSS 6680 ff119-120), and 1703 (BM Add MSS 6680 ff83-85). Neither Francis Gell, nor Sir Philip, who had shares in both soughs, recovered their investment, and both had withdrawn from the Hannage Sough by 1704 (BM Add MSS 6677 ff224-228). By the time that Cromford sough began work again in 1706, Thomas Bagshaw was drawing Sir Philip's attention to the fact that his interest in the sough was being questioned and advising him to "come into the Articles to exclude all future doubts and troubles" (D258/32/29/1).

In addition to using the courts to enforce payment of composition ore from the owners of Ratchwood, Venture and Northcliffe mines drained by the Hannage and other soughs in which they had invested, Sir Philip and Francis Gell were involved in other obscure disputes: in 1701 Sir Philip claimed title to certain mines on the grounds that the possession stows placed by rival miners who were searching for a vein were "watch stows" which could properly be removed and replaced by his own once the vein was discovered. He was advised by his lawyer, after consultation with an eminent barrister, that he had no chance of winning his case, since his opponents had been honestly searching for a vein which they knew existed and no court would find for the man who "stands above ground or hears 'em say they have found a vein & claps down his stows before they can get out of the hole" (D258/24/53/21).

MORTGAGE AND BANKRUPTCY

In 1692 Francis Gell enlarged his stake in the lead industry by taking a three-year lease of two thirds of the lot and cope in the Wirksworth Wapentake (BM Add MSS 6677 ff31-33), and by renewing it for a further three years in 1695. Gell's lot and cope accounts for this period (D258/18/25, table; Slack 1998) show a sudden rise in production in 1696, after the completion of the Hannage Sough as far as the Well Grove vein. Over 4,000 loads of ore were mined in 1697, but this success was not enough to rescue him from his financial problems. Francis Gell was declared bankrupt in 1699 and again in 1706 (D258/20/56). In 1708 his brother Sir Philip, having finally paid off his own debts, redeemed the property from Bagshaw for £2000 (D258/13/74) and took out a two year mortgage on Griffe Grange with him for the same amount (D258/13/73). At the end of the two years Gell defaulted on the mortgage, which was renegotiated in 1712. He redeemed it only in 1718, a year before his death (D258/13/75). A further indication that the Gells' mining interests had become inadequate to maintain their estate is seen in extensive property sales carried out by Sir Philip Gell in the early 18th century (D258/31/1/1-19, D258/31/2/1-33).

AN INDUSTRY IN DECLINE

The eighteenth century is usually described as being the heyday of the lead industry in Derbyshire and it was certainly a very active period. It was during this century, however, that the industry went into a decline which proved terminal. The trade was still hampered by the export duty. Even reduced from its highest point of 48/- a fother to the more manageable 20/- which had been achieved in 1641 it was still a burden. Sir Philip Gell argued early in Queen Anne's reign that lead was one of the three staple products of the English trade, the others being cloth and tin (D258/10/9/34). All duties had been removed from the cloth trade and the duty on tin had been replaced by alternatives. Gell argued that lead should be given the same treatment. Before the death of an elder brother made him heir to the baronetcy, Philip Gell had been a cloth merchant (D258/4/1). After two years trading in London he had lived from 1773 to 1775 in Smyrna, the modern Izmir, in Turkey, and for a few months in Tripoli, as a prisoner of corsairs who had captured him on his way home (D258/24/49/1-5). He knew that there was a valuable trade with Turkey in all three of the English staples. Wool of all grades was bought cheaply in Turkey, shipped to England to be woven and then returned to Turkey, where it was bartered for other commodities. Lead and tin were sold for cash. Gell argued that the encouragement already given to this trade by lifting the duty on cloth and tin should be increased by lifting the lead duty. Gell had the export figures for lead for the six years 1699 to 1704 (D258/10/9/49). The total was 66,580 fothers, a fother defined then as twenty hundredweight (a ton), and the highest annual figure, in 1701, was 12,853. It was "modestly computed" that the industry employed 10,000 men, women and children in Derbyshire alone and that lifting the duty would bring an increase in their wages and in the price of ore, with a concomitant rise in the revenue from lot. The duty raised £12,000, a small proportion of the national revenue, but if Parliament judged that the revenue lost by removing the lead duty would have to be replaced, Gell had some suggestions. An import duty on Irish wool would make English wool more competitive and make sheep farmers more willing to pay their taxes. A tax on ships provisioned with Irish beef would encourage the English beef trade. An import tax on Scottish beef would also help English cattle farmers and persuade them to pay their land taxes. The East India trade should be taxed. Gell knew, having "measured their cloth for seaverell yeares", that East Indiamen refused to transport any more cloth than had been pre-sold. Instead the trade consisted of exporting bullion and importing "trifles". In particular he suggested that an import tax on "chinaware" could replace the lead duty.

However, this and every other attempt to persuade the government to abolish the export duty failed. Far from removing or even lowering it, the authorities continued to regard the lead trade as a suitable source of revenue. In 1784 the duty was raised, and it was reported in the following year that the effect of the increase in duty was to reduce the export trade from Hull and Newcastle by 25 percent and lower the price of lead at Hull from £17 to £16.5.0d a ton (Burt 1984). It was argued that lower export prices meant lower prices throughout the industry, including the home trade (BM Add MSS 6681 f424-425). The export trade was at a disadvantage with German, Italian and Spanish lead and there were rich veins in New England which would attract English miners put out of work at home. Even

Scottish mines could undersell English and Welsh ones since they had retained the exemption from duty which they had had before the Union. It was not until after the Napoleonic Wars, with the English lead trade under increasing competition, that the government yielded to the pressure from the industry. The duty was abolished in 1816.

An indication of a general decline in the 18th century is that lot and cope were becoming much less profitable and the lessees sought to increase their income. Low-grade ore, known as "smitham" or "offal", had been exempt from payment of lot, but the rise in the amount of it presented for sale, and the suspicion that miners were producing it by crushing dutiable ore, prompted the Duke of Devonshire to fight a prolonged case with the proprietors of the Portway Mine in Winster to have smitham made liable for lot in the High Peak (BM Add Mss 6676 ff1-44, 50-90, 6677 ff54-60, 6681 fff211-226). He won his case in 1756 (Rieuwerts 1998), and the lessee of the lead duties in the Wirksworth Wapentake, John Rowles, began a similar case in 1766 (BM Add MS 6676 ff45-49, ff96-131, 6682 ff142-143). At the same time, in a move which illustrated the declining profit to be made from the industry, Rowles attempted to strengthen his case for payment of lot on smitham by agreeing to reduce it for all grades of ore, from every thirteenth dish to every twenty-fifth, acknowledging that the traditional tax had now become too heavy a burden on an increasingly expensive trade (BM Add Mss 6684 ff127-128). It was argued against Rowles that smitham was the product of poor men's mines and that those mines rich enough to be owned by gentlemen produced mostly the high-grade ore known as "bing" or "peasy" ore (BM Add Mss 6677 f67). Where half or more of a mine's output was bing, the proposed new duty of every twenty-fifth dish on all grades would be the same or less than the duty of every thirteenth dish paid only on bing or peasy. The opposite would be the case in poor mines, where most of the output was smitham, with the result that such mines would be uneconomic to develop.

This argument produced a picture of life in the Wirksworth mines in the middle of the eighteenth century: "The labouring miners generally work one shift a day at the mines of gentlemen for bread for their families, and in an evening go for a few hours to one of these poor mines for themselves, for which they do not often get one shilling per week, but from the hope of some discovery they toil on". If lot was levied on the predominantly smitham ore from such a mine, at the current price of 3/- a dish the miner would be paying £4-1-0d on fifty loads of smitham and one of bing ore, "a sum probably three times as great as all he had for his labour after payment of all necessary charges". It was alleged that those mine owners who supported Rowles's proposal did so for the cynical reason that in making poor mines uneconomic the imposition of lot on smitham would force the miners to work for them - "How cruel! That those very people who have rose from labourers to maintainers [owners] by means of this custom should themselves become the betrayers of that custom and rivet slavery on their descendants". It was argued that failure to work mines when their output dropped, a recurrent state in all mines, would soon destroy the industry.

Supporters of Rowles's compromise assumed that the new levy, like the old, would never be exacted for smitham "Supposing that he could establish his claim upon smitham (which I hope he never will) it would not be in his interest to take it" (Wolley 6677 f66). This assumption proved correct. A barmasters record for the 1790s shows lot of every twenty-fifth dish levied on ore and none on "belland" or smitham (D2629 z/z1). By this time a shortage of mined ore, improved buddling techniques and the ability of cupola smelters to process the smallest particles of ore, had prompted an increase in the reworking of old spoil heaps. In a case lasting from 1795 until 1797 a group of Wensley miners were taken to court for carting old mine hillocks from Wensley down to Darley Bridge for buddling near the River Derwent. They were accused of polluting the river by their activities (BM Add MS 6676 ff132-160, 6687 ff23-32).

SMELTING

In 1701 Sir Philip sold John Hutchinson a share of a smelting mill at Bolehill for £280 and his interest in the Wash Green mill (295538) for an unspecified amount (D258/20/20/1,2). He leased his Upper (290539), Middle (288533) and Nether (283529) mills to Hutchinson for amounts which varied from £40 per annum for Middle Mill for a four year lease beginning in 1704 to £180 for the Nether and Middle mills for seven years in 1708 (D258/20/20/8). Upper, Middle and Nether mills were still in operation in 1715, still leased to John Hutchinson until the following year. Gell was in dispute with his tenant over rents. Hutchinson was currently paying a total of £180 a year for the three mills and Gell estimated that he smelted 900 fothers of lead at a cost of £720, leaving him £540 to pay for repairs, supplies and wages and leave a very good profit (D258/24/53/43i). This was on the basis of single shift working and Gell noted that Hutchinson had operated double shifts for some years and even three on occasion.

SUCCESSORS

Sir Philip Gell died childless in 1719 and the estate passed firstly to his sister Temperance and, after her death in 1730, to her nephew John Eyre, son of her sister Katherine. Eyre changed his name to Gell, and the Hopton estate passed successively to his son and grandson, both Philip. These successors played only a minor role in the declining lead industry. The busy and profitable smelting activity shown in Sir Philip Gell's papers did not last. From 1735 furnaces began to be replaced by the more efficient and less polluting cupola smelters (Willies 1990) and, for the first time since the family had been involved with lead, the Gells failed to move with the times. All three of the Gells' Wirksworth mills, so busy in 1715, had either ceased smelting or were doing little business by the middle of the century. One of them, unnamed, was being let at an annual rent of £10 in 1734 (D258/17/24/2). Middle Mill was leased in 1751, the rent for the first two years of the lease being a peppercorn and for succeeding years £10 (D258/40/28). It was later converted to a dye works. By the end of the century Nether Mill was leased to Richard Arkwright, who had permission to dismantle it and reuse the stone (D258/7/5/22).

RAVENTOR MINE

The family retained shares in certain mines, notably Raventor, and continued to mine in Griffe Grange, where the most productive mine was Golconda. In the 1770s Raventor was drained by a branch of the Cromford Sough and production increased. Philip Gell had a sixteenth share in the mine at that time and received a total of £601-14-9d from the net profits between March 1773 and May 1776 (D258/25/7/1-11). In 1777 his share came to £59-1-11d (D258/17/29/3-5), but this sudden profitability was short-lived, and a single sheet of accounts for 1783 record Gell's sixteenth share of the mine's profits at £12-2-0d.

Raventor Mine Production 1773-1777 in loads & dishes

1773	4661-3
1773	3840-4
1773	2820-0
1776 (Jan-July)	1998-0
1777	2036-5

THE GRIFFE SOUGH AND 18TH CENTURY MINES

The Griffe mines were of the same type as those in the neighbouring area of Carsington Pasture: shallow and poor producers. Like the Carsington mines, most were dry, though a soughing agreement was made in 1735 by John Gell with twelve gentlemen investors, who included Gell's agent, George Tomlinson, and seven other local men plus three from Cheshire and one from Nottingham (D258/18/17/5). The agreement stressed that the Griffe was not part of the King's Field and that any activity was by permission of John Gell and under his terms. Any ore was to be measured in a dish prescribed by Gell who, either in person or represented by his agent, was to be present at measuring. Gell was to have a lot payment of one ninth plus a cope of 6d per load. He was to provide wood to the value of 40/- annually for coes and stemples and had unlimited right to inspect the workings during daytime and repossess them if they were left unworked for three weeks or more. The sough was to go from a swallow, or natural cavity, called Markdale (OS 252 562), and dewater Horse Close vein, Meadow vein, Mathers vein, Simpsons vein, Wigleys or Fynesdale Rake and other veins. The sough has not been found but possible evidence that it was in fact driven with some success is a reference in a mining agreement of 1771 to a number of mines and veins which included the Old Sough Vein. These mines lay "in or South of Markdale in the said Griff" (D258/18/17/6). Since one of the veins to be drained by the 1735 sough, Fynesdale Rake, is shown in a sketch of 1725 (D258/17/24/3) running into the area of the Griffe Grange Valley, it is clear that the sough was driven south from the valley, into the Griffe Grange ore field. The 1771 agreement concerns mines "in the said Griff so far as the Horse Road to the East which leads down to the Griff House from Hopton Moor". This road is presumably the one marked on the 1725 sketch.

A water problem is also suggested in a letter in June 1775 to Philip Gell from the family's solicitor which refers to sinking shafts "while the springs are so low that we may have everything ready against the Engine arrives" (D258/17/32/130). Output from the Griffe was usually low in the late 18th century. The sheet of accounts for Raventor for 1783 also records a total of 87 loads 7 dishes of ore mined in the Griffe, bringing an income from lot and cope of £12-10-1d for the year (D258/25/7/12). These figures for the Griffe suggest a similar sudden drop in output as had occurred at Raventor, since accounts during the 1770s had shown large lot and cope payments for the biggest mine in Griffe Grange, Golconda (D258/32/22/8).

In 1769 Philip Gell had made an agreement with his unmarried sisters, Maria and Isabella, and ten others to work Golconda and another Griffe mine, Gate Stoop (D258/38/7). It is not known when Golconda was opened, and it was not marked on the sketch map drawn up in 1725 which included lines of shafts along a number of rakes. The 1769 agreement refers to Gate Stoop having been previously worked but it is unclear whether this also referred to Golconda. The 1770s may have seen its earliest and best days. Philip Gell took two twenty-fourth shares and his sisters one each. His estate steward Philip Tomlinson had two shares and the Golconda mine agent, Benjamin Tomlinson, a single share. The agreement, like the soughing agreement of 1735, stated that the Griffe was not part of the King's Field and not subject to "any Custom or Liberty" without Philip Gell's permission. Like his predecessor, Gell was to take a royalty of one ninth of all ore measured, plus a cope of 6d per load. Two years later the 1771 agreement made similar arrangements to work the Bage Mine, Dog Hole Rake and Old Sough Vein in Griffe. The arrangements at Golconda did not work smoothly. The accounts include a letter from Benjamin Tomlinson in Derby jail in 1776, imprisoned on the allegation of Philip Tomlinson of stealing money from Philip Gell (D258/32/22/1-5). Benjamin Tomlinson refuted the accusation, saying that his namesake "must be a very grate villane" to make it since he, Benjamin, was owed four years salary, plus more for work done at Dean Mine. Far from taking "my master's muney he allwayes as been in my debt".

For the years 1771 to 1775 Philip Gell received a total of £814-10-5d in lot and cope payments from Golconda. The highest payment, £362-11-5d, came in 1773, and the fact that by 1775 the annual receipts had dropped to £40-8-7d suggest that a large deposit had been worked out. The same accounts suggest that the large amounts of ore mined there had not recouped the money spent in developing the mine, since they include "By cash paid for loss at Golconda Mine, beginning 22nd May 1773, and ending 30th June 1776 - £33-15-8d". Another note reckons the total profit from Philip Gell's two shares between 1769 and 1776 at £127-10s, offset by losses of £65-6-2d, leaving a total profit for the seven years of £62-6-2d (D258/32/22/1-5). The income from lead received by Philip Gell in the last quarter of the 18th century was a small part of the total income of the estate, which was about £3000 per annum

The decline of the industry after the late-eighteenth century was due to worked-out veins, increased production costs and the discovery of much cheaper foreign sources. The industry was protected from this foreign ore by import duty in the late 18th and early 19th centuries. A progressive reduction in the duty after the 1820s and its abolition in 1845 brought a steep rise in the volume of lead imported into England and accelerated the local industry's decline (Burt 1984).

ACKNOWLEDGEMENT

I acknowledge the help given me in this research by the staffs of the Derbyshire Record Office Chandos-Pole Collection D258) and the Local History Library (British Museum Added Mss. microfilm), both at Matlock.

BIBLIOGRAPHY

Burt, R. 1984 *The British lead mining industry*. Dyllansow Truran.

Crossley, D & Kiernan, D. 1992 The lead-smelting mills of Derbyshire. *Derbyshire Archaeological Journal*, 112, pp6-47.

Kiernan, D. 1989 The Derbyshire lead industry in the sixteenth century. *Derbyshire Record Society*.

Rieuwerts, J.H. 1980 The earliest lead mine soughs in Derbyshire. *Bulletin PDMHS*, 7:5, pp241314.

Slack, R. 1997 *Man at war: John Gell in his troubled time*. Chesterfield. The author.

Slack, R. 1998 Case history: aspects of the late seventeenth century lead industry in Wirksworth, Derbyshire, revealed in the courts. *Mining History. Bulletin PDMHS*, 13:3, pp7-15.

Willies,L. 1990 Derbyshire lead smelting in the eighteenth and nineteenth centuries. *Bulletin PDMHS*, 11:1, pp1-19.

R. Slack,