BROSELEY LOCAL HISTORY SOCIETY

Journal
No. 28
2006

CONTENTS

EDITORIAL

Broseley Local History Society

The Society was originally formed as the Wilkinson Society in 1972 and was renamed in 1997 to reflect its main purpose:

'the research, preservation and promotion of Broseley's unique heritage'.

Meetings are held on the first Wednesday of each month beginning at 7.30 pm, at Broseley Social Club; and annual events include a summer outing, an autumn walk and a winter dinner. Members receive a quarterly newsletter and an annual journal. The Society's collection of artefacts is at present stored at the IGMT Tile Museum at Jackfield.

The Society has a web site which contains information about Broseley, copies of the newsletter and articles from previous journals. This can be found at *www.broseley.org.uk*

The Journal

In this issue we present articles on two well-known industrialists who were active in this area in the late 18th and early 19th centuries – Lord Dundonald and James Foster; a biographical note of the first rector of Jackfield; a further episode of Dennis Mason's memoirs; and a River Severn tale. The articles represent ongoing researches and reminiscences of members of our Society, and we are grateful to the individual contributors. Our thanks also to Vin Callcut for editorial assistance and to Steve Dewhirst for design and typesetting

Contributions for the next issue of the Journal would be welcome and should be sent by 31 August 2007 to the Editor, Neil Clarke, Cranleigh, Wellington Road, Little Wenlock, TF6 5BH.

Archibald Cochrane, 9th Earl of Dundonald (1748-1831): Father of the British Tar Industry

by Paul Luter

This is an edited version of the Annual Wilkinson Lecture delivered on 1 March 2006. The text with appendices is available on the society's web site.

Introduction

Archibald Cochrane, the father of the British tar industry, was deeply concerned with "promoting ideas which were useful to his country and to mankind in general". He was a man with a very acute mind able to research and implement his ideas in a very wide field of interests. He was an aristocrat during the Age of Enlightenment who put his education and capital to very good use. Besides being the father of the British tar industry he had a deep interest and understanding of many associated chemical developments and markets. After service in the navy and army he developed extensively the resources of his home estate at Culross which included coal, ironstone, fireclay and salt pans. For many good reasons he also established himself and his industries in the Shropshire home of the Industrial Revolution. He worked with many of the great chemists, metallurgists and industrialists of the time including Joseph Black, Matthew Boulton, Richard Crawshay, John Loudon Macadam, William Murdoch, William Reynolds, John Wilkinson and others. He was granted nine patents covering inventions in the fields of coal tar, industrial chemicals and agro-chemicals and wrote many books and pamphlets explaining his discoveries. This paper gives a brief account of his life and highlights some of the ways in which he succeeded.

Background

Archibald Cochrane was born on January 1st 1748 at Culross in Scotland, the son of Major Thomas Cochrane, eighth Earl of Dundonald (1691-1778) and his wife Jean Stuart. Cochrane's parents had been married in Edinburgh on 6th September 1744. Archibald had four brothers John, James, Charles and Basil (1755-1826), who later became a captain and senior servant in the East India Company. His brother Charles died in action on 18th October 1781 and James (1751-1823) later became vicar of Mansfield. As a youth of fourteen, Archibald took a post as midshipman on a cruise under Stair Douglas off the coast of Guinea. While serving as acting lieutenant on the ship he had occasion to observe the liability of vessels to be rotted by the

Archibald Cochrane, 9th Earl of Dundonald

sea, which in some cases was so very great, that a few months was sufficient to render them not seaworthy. He then conceived the idea of laying them over with tar extracted from coal. Dundonald experimented upon his return on a decked boat at the Nore, and it was here Archibald first found tar to answer all the purposes required.

In 1764, aged just sixteen, Archibald joined the third Kings Own Regiment of Dragoons as a cornet. He was replaced according to records in 1768. Later, he joined the 104th Regiment where he obtained a captain's commission. Between 1768-1775 the Earl of Hopetown forwarded Archibald one hundred guineas as an allowance. He finally relinquished his commission in the army in 1778 after fourteen years of service. On 17th October 1774, Archibald married his first wife Anne Gilchrist at Annesfield, near Hamilton, Lanarkshire. He fathered six children by Anne including his eldest son Thomas. Archibald's father died on 27th June 1778 at La Macha, Pebleshire, and as the heir to the Culross estate he succeeded him as the ninth Earl of Dundonald.

Tar from Coal

In 1780 Dundonald discovered a new, easy method of extracting tar from coal. Many previous trials had been made by the Marquis of Rockingham near Sheffield and by others at Coalbrookdale and at Newcastle under the German Baron van Haak. However, the small quantities made at that time meant that it could not be sold economically for less than twenty-eight shillings per barrel.

If bituminous coal is heated in a closed retort it softens as the temperature rises and most of it melts, releasing hydrocarbon vapours

such as coal gas and coal tar. The proportion of volatiles varies significantly depending where the coal was produced. After the volatiles are released the residue solidifies as coke which may be strong enough to be used in blast furnaces for iron making. Coal tar can be distilled into many fractions to yield a number of useful coal tar crudes, including benzene, toluene, xylene, naphthalene, anthracene and phenanthrene. These now form the starting point for the synthesis of many products, notably dyes, drugs, explosives, flavourings, perfumes, preservatives, synthetic resins, paints and stains. The residual pitch left from the fractional distillation is used for paving, roofing, waterproofing, and insulation. Much of the benefit of the work of Dundonald must have come from the development of techniques for separating the many products and identifying their end uses and markets.

The British Tar Company

In the summer of 1780 Archibald borrowed £10,000 from his wife, the Lady Anne, which he promised to pay back with interest. The money was used to start a business called "The British Tar Company" with Dundonald himself, John Clerk (1728-1812) and other partners. Clerk had apparently been working on the same idea as Cochrane, and on 30th April 1781 he took out patent No: 1291, for a process "to distil bituminous coal for obtaining tar and other products."

In June 1782 Joseph Black (1728-1799), Professor of Chemistry at Edinburgh University, came to Culross to inspect Dundonald's plans for four new tar kilns, which Dundonald planned to build in the grounds of Culross Abbey. On returning to Edinburgh, Black studied the plans and by 18th January 1783 had completed his first consultation on wording of Cochrane's specification. Dundonald's plans were not cheap to build or run, as each kiln cost £50 and used 6½ - 7 tons of coal each week, while the waste cinders were sold as coke at Leith Market. The coal tar was recommended for the preservation of nuts, bolts and as an effective preservation of cast and hammered iron from rust, including coating the inside of guns in naval yards to stop them from scaling.

In January 1783, the British Tar Company had twenty tar kilns on Dundonald's Culross estate producing a total of fifty-six barrels of tar per week. The price of tar had gone up from fourteen shillings a barrel in peacetime to twenty-one shillings per barrel in wartime. The British Tar Company was making £58 16s per week from the Culross kilns. Dundonald commented that the tar and varnish was selling as fast as it

was produced. It was used on the bottoms and masts of ships and the oil of turpentine was used for painting houses. Dundonald was also selling coked cinders to the Carron Ironworks for melting iron ore. In January 1783, he sent a sample of his new purified alkali to Messrs Hutton and Davy, who manufactured sal ammoniac (ammonium chloride, used in dyeing and as a flux for metals). By March their tar was selling at twenty-one shillings, a barrel.

By mid August 1783, Matthew Boulton of Soho made the long journey to Perth to discuss business with Dundonald. Meanwhile prices of tar in Newcastle had reached twenty-six shillings a barrel. Customers wrote to Mr. Edward Park, Dundonald's Agent to the British Tar Company at Culross. Customers included Captain John Hall of the ship "The Swan," a tender in Government service, who found the coal tar ideal for coating ship bottoms after boiling one hour; and the shipbuilders Messrs Marshall and Gray from Kincardine, John Grieve of Grange coal works, and Alexander Morrison, a shipmaster of Aberdare. The British Tar Company products were also sent to Norway and St Petersburg, Russia and used by coppersmiths for the preservation of their iron buckets.

However, by May 1783, Dundonald confided to Black that there were already disputes going on within the company partnership. Consequently, whilst at Culross, Dundonald was paid a visit by the company bankers, Peter Miller and Captain Moody of Leith.

Salt Production

In 1784, Dundonald produced a fifty-two page booklet on the "Manufacture and Trade of Salt on the Herring fisheries and on the coal trade of Great Britain." A copy was submitted to the Right Honourable William Pitt, Chancellor of the Exchequer, and expressed concern that the two hundred saltpans at North and South Shields had diminished to just twenty.

By 1786 Thomas Cochrane, Archibald's brother, had erected apparatus on the Culross estate to purify salt on a large scale. In February 1786, Dundonald wrote to Joseph Black asking him to attend these salt trials, which were to be of national concern because the government was proposing a new law that all salt sold in Great Britain was to be purified before it was to be offered for sale.

Tar Making Monopoly

On 15th March 1785, London newspapers reported that the previous day a motion was announced in the House of Commons for leave to

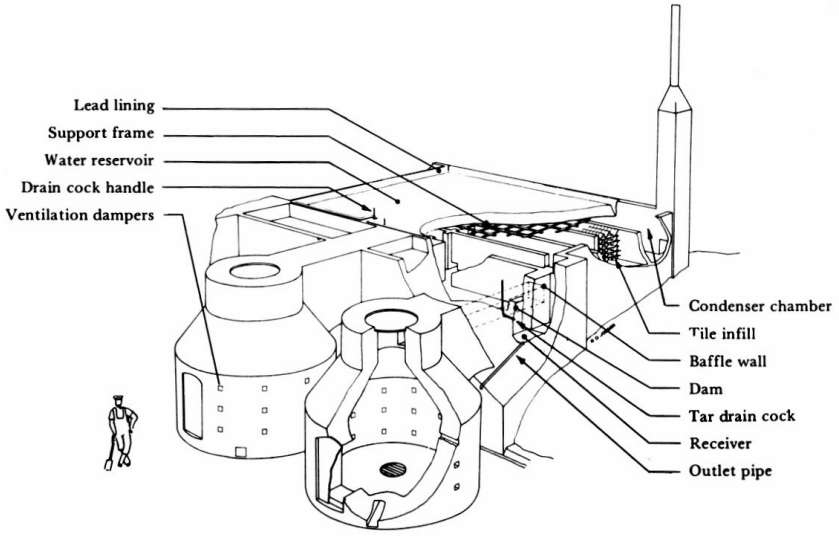
bring in a bill vesting in Archibald, Earl of Dundonald, and his executors, administrators and assignees the sole use of a method of extracting or making tar, pitch, essential oils, volatile alkali, mineral acids, salt and cinders from pit coal throughout his Majesty's dominions for a limited time. The proprietors of coal works nationally were in opposition to such an intended monopoly, saying that if an exclusive right of making coal tar oil and other articles, the produce of pit coal, should be granted by the legislature to any person whatsoever, it would materially effect and injure the owners of coal works and manufacturers where the processes had been going on for some time. Tar oil had already been extracted from pit coal for several years past and used for various purposes, particularly at Liverpool in preventing woodworm on the dock gates and by owners of vessels on the River Severn for preventing decay of trows. In 1785, Archibald published a booklet entitled 'An Account of the Qualities and Uses of Coal Tar'.

Madeley Wood and Jackfield

Soon after the trials, during May-November 1786, Dundonald held discussions with the Coalbrookdale ironmasters, William and Richard Reynolds at Bank House, Ketley in Shropshire. The nature of the discussions may have involved the discovery of tar in large amounts by William Reynolds in an underground canal Reynolds was making at Madeley Wood.

Reynolds listened to Dundonald's advice on how to manufacture varnish from the tar emanating from the rocks in the tunnel, and later in 1788 Reynolds recommended that the Ironbridge at Madeley Wood be coated with this varnish for protection. By June 1787, with the tar kiln projects at Madeley Wood and the Calcutts both moving forward rapidly, Dundonald found it suitable to move into the house called "The Tuckies" at nearby Jackfield.

In October 1787, Dundonald's plans for tar kilns at Madeley Wood received a temporary setback when William Rathbone refused building permission for the kilns, because of complaints from anglers about the possible pollution to the River Severn and their concern about the effect of noxious fumes upon the local residents. However, it seems that by December there was a change of heart, as William Reynolds, who had carried out trials on the productivity of Dundonald's coking coal across the river at Benthall Furnaces, had found his trials on the destructive distillation using clod coal successful. Dundonald was anxious over the results of these trials, as he had already asked William Reynolds, if he



The tar kilns at the Calcutts from a plan in the Dundonald Collection. (the late D. Jobber)

could set up a tar works at Ketley. So the results of his experiments at Benthall were pivotal.

Second Wife

In 1787, Dundonald's wife Anne, whom he had been with thirteen years, died, and this put off any business plans for several months while he was in mourning. However, a year later, on April 12th 1788, at St Georges Church, Westminster, Dundonald married Isabella Raymond, widow of John Mayne.

Dundonald was concerned that further procrastination at Madeley Wood would open the way for new objections on the part of the inhabitants and the watermen. So he proposed a refinement to the process in order to enhance the safety of the works by burning the noxious hepatic inflammable air and getting free of the tar water. He was able to use the tar water for watering the cokes and damping the kilns and as manure for William Reynolds land, instead of discharging it into the River Severn. Dundonald hoped these adjustments in the process would sway Rathbone and the issue in a positive way. Soon after, in spring 1789, John Loudon Macadam visited the tar kilns at the Calcutts, and expressed his opinions on the process to Dundonald.

Profit Shortfall

At this time debts were mounting for the British Tar Company, and after an investment of £16,000 in the Shropshire works the company had debts totalling £42,000. Other investments had come from procuring coal, salt and tar in speculations at Culross and in another works in Ayrshire, where £13,000 had been invested, a further £13,000 purchasing back the patents from former partners and an investment in a company called Messrs Chapman and Crawford. Consequently the British Tar Company decided not to invest further money in the erection of works and waited for returns on their investment. Their plan was to induce others to erect works on their own terms. The problem was that their sal-ammoniac speculations at Culross were in debt and their English tar works were their only profitable factories. In September 1789, Dundonald asked William Reynolds to come into the partnership with the new trading name of "The Mineral Tar Company."

In June 1789, Dundonald wrote of the British Tar Company's position stating that they ran two sets of works in Shropshire, at Calcutts and Madeley Wood, three sets in Staffordshire, including those at Lower Colliery, Netherton, Dudley Wood and Tipton. These works were built on property owned by other people and in all five cases, except at Tipton, the leases would last for a short period of twenty-one years.

Dundonald complained about the mode in which the British Tar Company was managed; the investments would not pay back more than four per cent on capital. This would hardly be enough to pay off the initial debts they borrowed at five per cent in setting up the Shropshire and Staffordshire works. At this time, Dundonald knew the company's expansion was vital, if they were to survive. At Dudley Wood the tar works were proving a great success under the sub-management of William Pitt of Pendeford. The following year in August 1790, Richard Crawshay wrote of his approval of a new scheme of Dundonald's in attempting to rid the ironmasters of what was described as "the carbonaceous principle" or rust caused by exposing iron to vital air. Dundonald recommended the addition of salt to quell the problem and sent Crawshay a copy of his new manuscript on iron.

Benthall and Ketley

The results of Reynolds's experiments on the clod coal at Benthall furnaces proved that the production of tar from coal was a viable commercial proposition So much so, that to Dundonald's satisfaction in October 1789 William Reynolds authorized the building of tar kilns and distilleries close to his Ketley works. While the building of kilns

was in progress at Ketley, Dundonald approached Reynolds regarding the dire financial situation of the British Tar Company. Reynolds shrewdly decided to bear no part of the company's debts or expenses already incurred. However, he promised Dundonald he would invest in the Ketley estate, when he received commercial gain from the cokes produced from Dundonald's process. Dundonald himself would have to manage with profits arising from the chemically extracted tar, varnish and oils from the process. The weather turned adverse for "The British Tar Company," as they could not produce any salt at all because of the heavy rains of 1790/91. However, between Christmas 1790-1791, Dundonald made a profit of three thousand, three hundred and eighty-five guineas (£3,554) from mining coal at Culross and in supplying the extensive iron works at Carron in nearby Falkirk.

Potato Bread

In February 1791, Dundonald produced a booklet consisting of three letters, which was entitled, "The letters of Earl of Dundonald on making bread from potatoes". William Creech printed the booklet in Edinburgh. It included details of his experiments and describes how the process had been long used by the West Indians in the preparation of Cassado flour (tapioca). This powdered potato could be taken as a broth for sick sailors on long voyages and could be made from sweet potato in warmer climates. The mixture could also be used as liquor for cows in wintertime and in the production of potash. Dundonald trailed the process near Culross Abbey during the first months of 1791 and a Mr. Findlay, baker from Edinburgh, who sent out specimens to Dundonald's acquaintances, baked the bread.

By March 1791, Dundonald had published his pamphlet on feeding the starving populace by making good bread by a mixture of starch and potato powder being added to flour.

With the combination of other interests, the dire situation within the British Tar Company had grown so oppressive, that Dundonald wished to give up the remaining fourteen years of his tar patent. He felt troubled that he had spent ten years of his life and yet had never received a penny from the British Tar Company, while others within the company had profited greatly. In 1791 the price of tar had increased to a high level and by March 1791, the company was being managed by George Glenny, banker and gambler, Lord Kinnaird and Admiral Keith Stewart, who according to Dundonald, was a man who, "had a heart without a head." By December 1791, several influential manufacturers, including William Reynolds, were using Dundonald's

coked coal in their blast furnaces to great saving and effect. But there was no profit in this for Dundonald, who expressed himself to be better off as "a disinterested promoter." Records show that at this time Dundonald had an estate in Stourbridge where an eleven-foot vein of clay was uncovered.

More Tar Works

After 1792, the Horsehay and Coalbrookdale Ironworks were using the Dundonald varnishes and later the Shropshire Canal Company used them to preserve tub boats. By 1792, Dundonald and his partners had three successful tar works situated at the Bradley ironworks, Tipton and Dudley Wood. The tar works at Dudley Wood was managed by William Pitt of Pendeford. The ironmasters at all three ironworks nearby furnished the tar works with raw coal and received cokes in return. According to an article published by the Chemistry committee of the Royal Society of Arts and Manufacturers, out of the one hundred tons of coal employed in making tar each day at Bradley, eighty tons would "fly away" in smoke. Dundonald introduced aftercooling of the smoke to condense out and recover tar products with a good improvement to process economy.

By 1793, Dundonald was one of the first pit owners in Britain to stop the employment of women and children underground. On October 4th 1794, he took out patent no: 2815 for "preparing and obtaining vitriol of argil (aluminium sulphate) and other salts, saline and other substances."

Culross Estate

In 1793, Dundonald published a booklet, printed in Edinburgh, entitled, "Description of the Estate of Culross, particularly the mineral and coal property including an account of coal workings at Culross since 1572 and a description of the coalfield on the Firth of Forth". The booklet offers a fascinating glimpse into the estate that Dundonald inherited and which was soon to be sold that year. The estate was made up of three main sections: a nine-hundred acre estate, which included Culross Abbey; a further eight hundred acres of forest, first planted in 1751; and thirdly, ten thousand acres of coal territory. Dundonald's coal territory contained twenty-seven seams of coal from two to nine feet thick. By 1793, seven of these seams were still un-worked. These seams contained "Smithy coals and rich, cakey, dry Splents, well adapted for the manufacture of pig and bar iron and entirely free of sulphur".

Originally the Culross estate was acquired by Sir George Bruce of Carnock, Dundonald's great, great grandfather by the female line. The coal and saltworks there formerly belonged to the Abbots of Culross and Sir George purchased the land from Colville, Commendator of Culross in 1575. Sir George was the younger son of Bruce of Blairhall and brother to Edward Bruce, Lord Kinloss. Sir George erected machinery consisting of the Egyptian wheel called a "chain and bucket" to drain the coal. However, in March 1625 most of the saltpans and coal pits along the coast of Fife were drowned by storms. Between 1597-1625, Bruce had dug more than a mile under the sea. In discussing Bruce's work, Dundonald quotes from a booklet entitled "The penniless pilgrimage of John Taylor into Scotland," first printed in 1618, and reprinted in 1625. Dundonald tells us rather amusingly, that if the Gunpowder plotters had known of these tunnels, they would have used the design in London to blow up the King's barge upon the Thames.

The water from the mines was conveyed to a well, where there was a horse mill with three horses and a great chain of iron going down many fathoms with thirty-six buckets fastened to the chain. The salt works made ninety to one hundred tons of salt weekly and some was sent to England, Germany and parts of Scotland. Three quarters of all Scottish salt was from Firth of Forth production. At this time the Rock Salt in Cheshire had not yet been discovered and in 1673 a great duty on French Salt was brought in order to improve the English salt trade. There were forty-four saltpans on Dundonald's land using one hundred and seventy-five picked men.

He also mentions that during 1621/22, large quantities of coal were sent to London from Culross. However, the Scots army stationed at Newcastle interrupted the trade of the river. Finally, in 1676, all mining ceased on the Culross estate and the mines became redundant for a period of ninety-eight years. Dundonald finally re-opened the mines there and at Valleyfield in 1774. By 1793, the price of coals had advanced twenty-five per cent.

A feature of the Culross estate was the forest, first planted during 1751 and used to provide wagon way rails, sleepers and pit timber. Dundonald had ten acres cut down annually and each tree made three shillings. The sawmills there made a profit of one thousand, three hundred pounds annually. Large quantities of wood from Culross went for wagon rails at collieries in Tyne and Wear and Shropshire.

Culross Palace built for George Bruce between 1597 and 1611. Now in the care of the National Trust for Scotland

Bands of ironstone were also numerous on the estate, suitable partly for forge and partly for melting iron. There were fourteen strata of ballstone (ironstone) lying eight feet thick and Blue Clunch (a fireclay) at two shillings and sixpence per ton. There were several sites within sixty yards of the high water mark, which Dundonald felt would be good sites for furnaces. In these Dundonald proposed using ironstone as a flux instead of limestone. On the estate Dundonald also describes the "inexhaustible veins of indurate fine clay measuring eleven feet thick", which he describes as "equal in quality to that of Stourbridge". The seam was rendered level, free to the height of forty perpendicular fathoms, by a mine from the high water mark.

There were two fire engines (steam engines) on the estate, one with a 40" cylinder, the other a 50" cylinder. Other mineral riches on the estate included coal to the west of Queeensferry and slate, which gave one-seventh of its weight in green vitriol and alum. Although Dundonald did not wish to part with Culross Abbey in 1793, the property was in great need of repair. The mines he was forced to sell for four thousand guineas, a sum of twenty thousand guineas below their true value. He had just begun to build a proper quay and harbour for shipping coal

from the estate. In his sale of the Abbey, Dundonald had reserved the power to re-purchase the property within ten years on repayment of the original price plus a five pert cent interest.

The Royal Burgh of Culross in the Kingdom of Fife is on the north side of the River Forth and now looks across to the oil refineries at Grangemouth. It sits between the huge Longannet power station to the west and the derelict Low Valleyfield colliery and the disused salt pans of Preston Island to the east. Fortunately, it has been in the care of the National Trust for Scotland since the 1930s and includes many 16th century buildings, including the Palace of 1597. On the hillside above the village are the remains of Dundonald's Culross Abbey.

Some Problems

The sale of the Abbey at this time was hindered by Dundonald's unfortunate connection during 1783 with Mr. William Chapman and the late Mr. Liddell of Newcastle. False reports about Dundonald were circulated by coal proprietors within the Firth and circulated by Scottish colliery managers. Dundonald challenged coal owners to validate their remarks. Indeed during April 1792 several gentlemen and coal masters came to inspect the Culross collieries and gave a good report. Dundonald had long been willing to dispose of his tar patent to the government or to coal and ironmasters in Britain on being reimbursed money he had expended. But he wanted a House of Commons enquiry into the state of the manufacture of coal tar in Britain and the reasons why (by 1793) shipbuilders would not make use of coal tar, even after the fullest evidence of its resisting attacks of sea worm. Complete cladding with copper of the underwater hull of a ship had been first used on HMS Alarm in 1761 to prevent attack of the wooden hull by the Teredo worm in tropical waters. The copper was also found to reduce biofouling of the hull very significantly which gave ships a great advantage of speed when compared with those dragging round a vast growth of marine weed. By 1793 the navy was cladding all ships with copper rather than tar.

During 1793 Dundonald expressed his delight at what he described as, "the erection of the properly planned and constructed tar works in Shropshire and Staffordshire" which he had superintended. However, adverse remarks materially hindered his progress and by 1793 little remained of the fortune from his maternal, great grandfather, Sir George Bruce, and only the castle remained. Dundonald felt caught in a void between traders and peers. Traders said, " You are a peer", whereas peers said, "You are a trader-we have nothing to do with you."

Dundonald was also criticised in an anonymous letter published under the signature of one "Millbank" in July 1792. Dundonald described the letter as the "abusive Epistle of Millbank". Sadly, a copy found its way to the Lord Advocate of Scotland, which did not help Dundonald's plight. Consequently, Dundonald separated himself from Scottish peers, intending to dispose of his property and retire with the debris of his fortune. Dundonald had two sons, grandsons of the Gallant Captain Gilchrist of Southampton. Dundonald was ready to accept a rank in the navy or army if war came, having left the navy previously because of domestic concerns. By 1793, no coal was being mined on Dundonald's estate or on the Firth of Forth, and four-fifths of coal coming into Scotland was coming from Newcastle and Sunderland. Dundonald noted this coal was "rubbish" in comparison with Culross coal. Dundonald criticised the Scottish colliery system and he launched verbal attacks on the masters methods wanting to put a stop to "the barbarous and ultimately expensive methods of converting colliers wives and daughters into beasts of burden and causing them to carry coals to the pit bottom or the bank on their backs."

He advised better use of steam engines and recommended the adoption of the "Long Wall" system, as in Shropshire. He also condemned the methods of the Scottish colliery owners in retailing beer and whiskey to the colliers and expressed concern over the cheapness of coal bought by the large ironworks, who were eating up huge amounts of stock and which was causing problems. He was able to show that each furnace was using 9,000 tons of coal annually and calculated that as each miner turned out eight tons per week each, it would take 112 colliers to serve one furnace. Hence five furnaces would need the labour of 262 (sic) colliers. The calculations were designed to show the drain on labour and Dundonald suggested, "Ironmasters should recruit for themselves".

New Partners

In 1794, John, William and Gorge Losh became new partners in the British Tar Company. Soon after, the British Tar Company opened a new chemical and tar making complex at Bells Close, Walker upon Tyne, near Newcastle. It was here that, in an effort to turn business affairs around, Dundonald also brought into the company Captain John Dumaresque and his own brother John. During 1795, Dundonald carried out experiments in William Reynolds's laboratory at Bank House, Ketley. As a result he succeeded in producing the baked mixture of dried potato and starch, which had been developed and would feed the poor in times of need. The project needed support from the

government and Richard Reynolds wrote to the Board of Agriculture encouraging the promotion of this project. Dundonald was concerned that with the increasing population that lower classes of people were better fed at a cheaper rate, and William Reynolds planted large amounts of potatoes at Wallimoor Wood, Wombridge to support this ideology.

On February 28th 1795, Dundonald took out a third patent no: 2039 for "preparing saline bodies as manure", and soon after on March 11th 1795 he added another patent no: 2043 for "obtaining mineral of fossil alkali or soda from neutral salts and supplying to various purposes". In March 1795, Dundonald, with the use of coal tar now completely out of favour, and with the help of Mr. Vancouver, Dundonald released a booklet entitled, "A treatise showing the intimate connection between Agriculture and Chemistry addressed to cultivators of soil and proprietors of Fens and Mosses in Great Britain and Ireland and proprietors of the West Indian estates." The booklet shows us Dundonald's intimate understanding of the chemistry of soil.

In it he encourages farmers to deepen their understanding of chemistry, particularly in the action of manures upon the land, and the methods of preparing manures and thus getting more from the soil. Dundonald stated he had learned much from the discoveries of Priestley, Cavendish, Bergmann and Kirwan, and had also understood much from the earlier work of Dr Francis Home on saline bodies (1756) and also Sir John Pringle's essay on antiseptics. He encouraged the analysis of cattle urine and of dung heaps and the use of ashes, lime and chalk upon the ground as manures. The booklet also discussed ways of improving hemp, as Dundonald felt that if hemp was cultivated on a more extensive scale in England the oil from the seed could be well applied to the manufacture of soap, which was then made of tallow. This in turn would cut the huge amounts of hemp then being imported at cost from Russia.

By April 1795, Dundonald's fourteen-year patent for producing tar from pit coal was ending and other works proprietors had begun to build kilns for their own tar projects. On June 29th 1796,the diarist Charles Hackett visited the British Tar Company's Walker on Tyne works, situated four miles northwest of Newcastle. He observed the men, "separating sal-ammoniac from sea salt, and the production of white lead". Later, William Losh brought drawings of the Leblanc soda manufacturing process back from a visit to Paris, and the company attempted to apply this new technology at the works. On visiting

Shropshire the same year, Hatchett, observed the kilns erected by Dundonald for the distilling of pit coal at the Calcutts near Broseley.

Hatchett commented that, "by this process the bituminous part of coal (lost when making coal) is conveyed through long winding chimneys and after being condensed is received in a recipient". Other sources agree it was at the Calcutts that Dundonald erected a number (up to twenty) of large ovens, termed stew-coal ovens, with a view to extracting oil or tar and thus cheapening coke for making iron. For each hundredweight of coal, Dundonald was able to obtain four pounds of tar and volatile oils and some varnishes adapted for japanning purposes. Indeed as early as 1788, Dundonald had "Cypresso Congreve" varnish in production at Wrockwardine Wood. The process consisted in conveying the liberated gases from these ovens by means of flues into a capacious funnel or a chamber built out of bricks and supported on arches. Here large amounts of water for the cooling and condensing of these gases was brought in by means of numerous leaden ducts or channels. The condensed products were then carried by iron pipes into receptacles and then pumped into a boiler to undergo further refining. On April 5th 1796, Richard Crawshay received a copy of Dundonald's new booklet on chemistry. Dundonald had been very much influenced by the chemical ideas of a Swedish chemist named Torbern Bergman, so much so, that by 1799 he described Bergman's work as "his bible and prayer book" on the subject.

On August 16th 1797, Dundonald took out his fifth patent no: 2189 for "making white lead", and this was followed on January 25th 1798, with a sixth patent for "preparing neutral salts and applying those to other neutral salts." By 1798, John Losh and Dundonald had leased a pit near the Walker on Tyne works, where the natural occurring brine springs were used to make alkali.

Sibling Problems

Dundonald found himself in a strange predicament at this time, when John and Basil Cochrane, his brothers, tried to saddle him with all their debts. By 1799, for some unknown reason, they gained possession of £23,000 acquired from the fortune of Archibald's marriage.

The brothers also extorted three patent controls from Dundonald, and this action completely split the family's devotion to one another. It again seems that Dundonald was being forced out of the company and being starved of income from it, as George Glenny, the British Tar Company's agent as a government contractor, lived a very wealthy

lifestyle from his great house in Southampton Buildings. By 1799, Dundonald had built further tar kilns at Ketley and we know that each barrel of tar produced at Ketley contained thirty-two gallons. A further refrigerator and condensing vessel was also built there according to Dundonald's specification. By September 1799, after Dundonald had separated himself from the financial entanglement with his brothers, William Reynolds requested an agreement with Dundonald personally for the carriage of tar along his canals at Ketley and Wombridge.

However Basil, Dundonald's brother, brought in George Glenny, who was an attorney, to fight for the British Tar Company's rights in this matter. By December 1799, after ten years in business with the British Tar Company, Dundonald was £45,000 in debt, mainly due to losses in personal fortune and through mineral prospecting in Scotland. His trade problems were further exacerbated by levies on alkali and alkali salts. Dundonald began to recommend to some ironmasters that they adulterate alkali and soda in order to avoid taxation.

Financial Problems

Dundonald noted that Mr Aubone Surtees, a wealthy banker from Newcastle upon Tyne, was the only one who seemed to be exempt from this levy. By the end of 1799, a loan of £10,000 from Lady Dundonald had not been repaid and the company was only paying thirty pounds per annum for the Calcutts tar kilns at Broseley. By 1800, the Losh brothers had excluded Dundonald from any management consultations and subsequently he was no longer informed of the worsening financial state of the British Tar Company. From this time onward, Dundonald, scared of long-standing creditors catching up with him, progressively led the life of a perpetual fugitive. He often was staying incognito at lowly inns while seeking small loans from his wealthy friends in industry. By this time, he was also suffering from a profound, if largely justified, persecution complex, his health was fading and during November 1799 he visited Dr Thomas Beddoes at Bristol Hot Wells to get some medical help. It whilst he was in Bristol that Beddoes gave Dundonald a copy of his new publication, which contained an account of all of Dundonald's chemical discoveries and discussions. At this time Dundonald was residing at the house of Mr. Oliver at number 22, Bell Yard, Caney's Street, Lincolns Inn, London.

Coalport

During December 1799, William Reynolds had proposed a plan for a Dundonald type chemical works to be situated at Coalport. The works was to make soap, dyes and paint, using the natural gradient of the

land, which suited the chemical processes proposed. At this time Dundonald tried to persuade Reynolds to allow him to direct the alkali works at Wombridge in place of the young chemist, John Biddle, whose failure Dundonald egotistically prophesied. Interestingly, although Reynolds still regarded Dundonald's initial proposals for the large integrated site at Coalport with favour, subsequently, in May 1800, he was making plans for these Coalport proposals to be checked by experts in London.

In December 1799, Alexander Brodie took over the kilns at The Calcutts from Dundonald and was marketing tar at nine pence per barrel. Consequently an income of nearly £700 from oils, resins and varnish paints was reached. At this time, Lady Isabel Dundonald began to be swindled by George Glenny. Dundonald's distaste for Glenny can be seen in his letters, where he describes him as "a scoundrel", and he wanted a proper legal enquiry to be made as to his conduct. Meanwhile the partners in the British Tar Company, including Dundonald's brothers John and Basil, had been declared bankrupt.

In January 1800, with Dundonald now unable to sustain the house, William Reynolds moved into The Tuckies. Dundonald visited Reynolds there to show him his new patents for preparing glauber salts, alum, alkaline salts and white lead, but unfortunately Reynolds had gone to South Wales. By February 1800, Dundonald himself had became quite ill and he left his sick children in London in order, once again, to get cures from Beddoes in Bristol. At this time, Dundonald had also persuaded his son William to give up thoughts of going into the army and persuaded the steady and reliable William to assist the fortunes of the British Tar Company. In March 1800, William Reynolds fell quite ill and was becoming progressively weaker. Dundonald urged him to take great care, but by November Reynolds was so ill that all plans regarding the chemical works at Coalport were shelved.

Trials in Birmingham

By autumn 1800, Dundonald himself had become almost paranoid about misrepresentations as to his conduct and character. His attitude to business in Shropshire changed dramatically, so much so, that he directed any trials on Shropshire tar to be conducted in Birmingham by John Biddle, a man of whom he had a low opinion. Dundonald received a favourable report from Biddle about his glauber salts process and consequently asked Reynolds if he could make alkali under his own patents alongside Reynolds's present soap works at Wombridge. Dundonald was again forced to move home in an attempt to shake off

creditors, and moved from lodging at the mail stage at the The Dog Inn, Birmingham and his old quarters at the nearby Castle Inn, where letters were directed to him, undercover, through the landlord.

On July 21st 1801, Dundonald took out another patent no: 2529 for "preparing a substitute for gum Senegal and other gums". A month later, Dundonald produced a paper entitled, "Directions by Lord Dundonald for extracting gum from Lichen or Tree Moss". The booklet shows he had made experiments in which gum fit for use in calico printing was produced. The process was one whereby the lichen, which was abundant in Sweden, Norway and Northern America, was initially uprooted in winter and kept in storehouses to dry. The lichen trees were then stripped of their outer skin by boiling and then the skins were cooled on a brick floor for twelve hours. The lichen was then put into a copper boiler with some wine, soda ashes and volatile alkali, and boiled for up to five hours. The resulting gummy liquor was withdrawn and filtered. The residue was used for a tallow making process. The gum produced proved to be useful in making ink, stiffening silks and staining paper.

Dundonald was still actively involved with some works and in 1802 the British Tar Company were still producing coal oil at Ketley. On June 28th 1803, Dundonald took out patent no: 2719 for "treating hemp or flax to aid the heckles" (a heckle is a comb for flax or hemp). On May 3rd 1804, the Royal Society of Arts and Manufacturers Committee of Colonies and Trade received a letter from Dundonald about the tests he had carried out on Canadian hemp. In 1804, the Swedish traveller, Erik V. Svedenstierna, visited tar kilns at The Calcutts on the slope of the hill close to the River Severn. He observed that:

"Twenty ovens have been built in order to collect Dundonald's invention. The ovens were arch shaped and built with bricks and have inside and outside, the appearance of a hayrick or beehive seven to eight feet in height and diameter. On the side of the oven is an opening, through which the pit coal is introduced, and on the floor is a square hole with strong and closely-spaced grate bars, under which there is a space for ashes and which is connected with an opening in an outer wall. In the oven dome itself there is another opening into which is fitted a cast iron gripe several inches in diameter, which then enters a brick built water reservoir. When the oven has been filled it is heated at the ash-hole, and as soon as the coal is burning sufficiently the large opening is walled up. The smoke then passes through the pipe in the

roof and is condensed in the water reservoir. A quantity of hydrogen gas or combustible air develops during condensation and is led away from the reservoir through another pipe. The tar is drawn off from the reservoir into a large tank where it is left so that impurities are deposited and most of the water separated. The tar at this stage is still unsuitable far most uses and must therefore undergo a kind of distillation and as a result of this distillation and being mixed with a little water changes into strong viscous oil, which is similar to our pitch oil. This oil is used to paint certain parts of buildings, and, mixed with lamp-black, to touch up fences and suchlike."

During April 1805 William Murdoch was conducting experiments on "burning the gas from coal". It was during one of these experiments that Murdoch was reminded that "currents of gas" once escaping from many of Dundonald's tar ovens had been quite frequently fired, creating vast amounts of heat and light.

Finale

On March 14th 1812, Dundonald took out his final patent no: 3547 for "preparing and manufacturing alkaline salts from vegetables". Five years later, on September 18th 1817, Isabel Dundonald, Archibald's second wife, died and just over a year later, in April 1819, Dundonald married for the third time at Fulham, Middlesex to Anne Maria Plowden, the daughter of Francis Plowden. She was, as one researcher described her, an estimable woman, unspotted in character of a high, untitled family. With her small pension, which she obtained through the benevolence of the crown, she brought a gleam of light to the dark decline of Dundonald's life. However, in September 1822, she died in childbirth, leaving the child in his care, and from that time onward Dundonald was abandoned into poverty, after just three years of marriage.

After Anne Maria's death, Dundonald seems to have been resident at Eppleton, Houghton le Spring in Northumberland, but after 1824 he left England for France, where little is known of his life course. He died in poverty, seven years later, on July 1st 1831 at the age of eighty-three, in a house in the Rue Vaugirand, Paris. John Randall, in describing the work of Dundonald in the Broseley area of Shropshire, tells us that on his death Dundonald left legacies to a total of £15,000 to his thirteen surviving nieces and nephews.

Iron and Ironstone: James Foster and Broseley

by Steve Dewhirst

James Foster was one of the most prominent Midland ironmasters of the early 19th century. Born in 1786, he was the son of Henry Foster (1743-1793), a manufacturer of iron goods. He joined in a partnership with his half-brother, John Bradley, and other members of the family, the firm trading as John Bradley and Co. Bradley had founded Stourbridge forge in 1798 and it was here that one of the first railway locomotives, the Agenoria, was constructed in 1829 by John Raistrick. John Bradley died in 1816, leaving Foster in control of the business, and in 1837 he became sole owner of John Bradley & Co. Under Foster's managership the company grew until in the mid 19th century it had interests in more than 30 Midland ironworks.

James Foster (1786-1853)
Portrait by R. R. Reinagle, R. A at Stockton House

Foster first became associated with Shropshire when the partnership purchased the forges at Eardington in 1809. Gradually they acquired other ironworks at Hampton Loade, Hadley, Wombridge and Broseley, as well as the Madeley Court Estate, where Foster built new furnaces in the 1840s. The business in the Black Country continued to develop, with the Shut End furnaces being constructed in 1839 and other furnaces being acquired at Darleston in 1883, the latter continuing in production until 1934. James died unmarried in 1853 and was succeeded by his nephew William Orme Foster. In 1867 W. O. Foster made Shropshire his home when he purchased Apley Hall from the Whitmore family. William died in 1899, leaving the business to his son William Henry. However, his interests were elsewhere and the business was finally sold in 1919, though he continued to live at Apley.

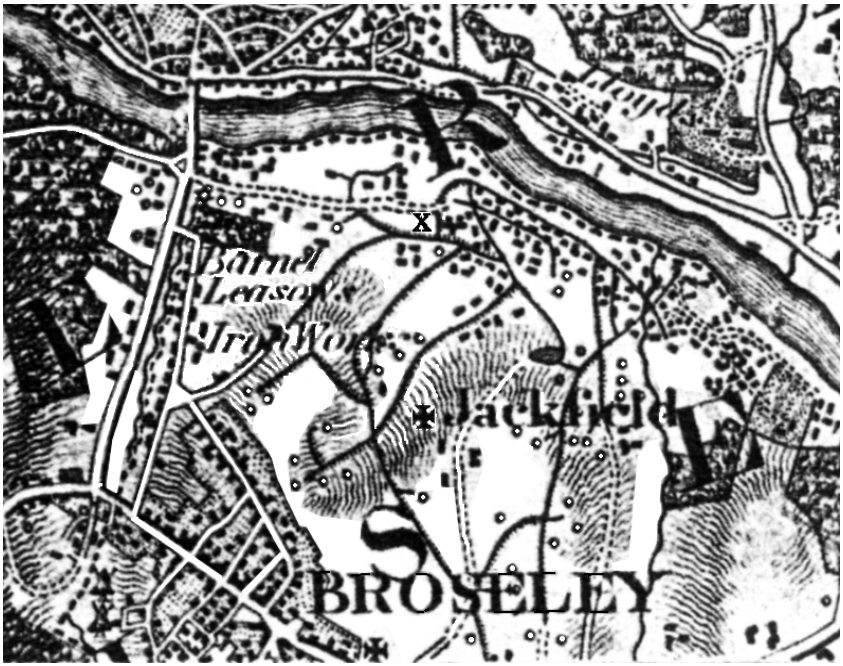
Apley Hall: The estate had been purchased by the Whitmores in 1572, the original hall being rebuilt in 1811 by Thomas Whitmore. It was purchased by W. O. Foster in 1867 from Thomas Douglas Whitmore. It is said that Queen Victoria was interested in acquiring the property; however, she purchased Sherbourne in the Isle of Wight instead. The house was also the setting for 'Blandings Castle' in the P.G. Wodhouse novels, although there is no suggestion that Lord Emsworth was based on Foster! It remained in the family until 1962 when it became a school. This closed in 1987 and the hall is now being converted into apartments.

Foster's association with Broseley begins in 1821 when he acquired the Barnetts Leasow Furnaces and the associated mining rights. The furnaces had been built by John Wright and Richard Jesson, ironmasters from West Bromwich. In 1773 they patented a method of making wrought iron by heating pig iron in clay pots, and in 1777 they acquired Wrens Nest forges on the Linley Brook, close to the Severn, to produce iron using their potting and stamping method. In 1796 they took out a lease from the Forester Estate of land on the banks of the Severn at Barnetts Leasow, Broseley, and built a furnace which was in blast by April 1798. The furnace supplied pig iron to their forges at Wrens Nest and West Bromwich as well as for general sale. It was blown by an engine supplied by Boulton & Watt in 1797. In late 1800 a second furnace was built and the engine replaced by a larger one, also

from Boulton and Watt. The partnership was dissolved in 1812, following the deaths of John Wright and Richard Jesson, and the furnaces were taken over by Thomas Jesson and Samuel Dawes, the son and son in law of Richard Jesson. Coal and ironstone came from mines on estate land with limestone coming from quarries at Tickwood, this being by tramway to the Severn then by barge to the furnaces.

The lease for the furnaces and mines was put up for sale in 1805. At this time one furnace was in blast with only 574 tons of iron being made in a year. The sale particulars state: "*The Carriage of Coals and Ironstone to the Works does not exceed Sixpence a Ton. There are Iron Rail Roads laid to all the Pits, which are sufficient to supply the works with Coal, Ironstone, and Limestone at a low Price, and are capable of making from 80 to 100 Tons of Pig Iron weekly*." There were "*on the Bank 100 Tons of good Iron Rails and Sleepers, and about 90 Coal and Ironstone Wagons"*.[1] The lease does not appear to have been sold as in 1810 they were still using one furnace, but by 1815 the furnaces had been sub let to Charles Phillips, who already had experience of the iron trade in South Wales. Although the iron appears to have been of a high quality, in 1820 Phillips and his partner William Parsons went bankrupt with their effects being offered for sale, in distress for rent, in 1821.

The works now being idle, James Foster expressed an interest in acquiring the furnaces and mines to add to his interests in the Black Country. Lord Forester commissioned John Onions and James Clayton, a Master Collier from Lawley, to produce a report as to the advantage of granting the lease to Foster. The area covered by the lease was defined as "*pointing in a line from the Woodlands Green to the Upper Ridding House in the said parish of Broseley and from the said main fault under the lands formerly belonging to the said George Weld since to the said George Forester but now to the said Cecil Weld Lord Forester between the Main fault and the River Severn And also in and under the several pieces or parcels of land called the Rotherhurst and Barn yard situate lying and being in the parish of Broseley aforesaid containing together by estimation eleven acres two roods and fourteen perches or thereabouts (be the same more or less) heretofore in the occupation of Jane Corbett Widow and now of Richard Colley as Tenant to the said Cecil Weld Lord Forester*." Onions and Clayton recommended granting a lease to Foster with a proviso that at least £500 should be spent "*exploring for undiscovered*



Extract from Greenwoods Map 1826-27. showing the Broseley area. It depicts Barnetts Leasow furnaces (top centre - marked 'X') as well as the mines and tramways. Most of Foster's mines would have been those north east of the Red Church(left of the word Jackfield), the others serving Calcutts and Coneybury Furnaces. Although the map is inaccurate in some details and scale, it is the best representation of the scale of mining and the large network of tramways that existed in the early 19th century.

mines in executing buildings on the said premises or otherwise improving the said works". As the mines in Broseley had been worked for some centuries it seems unlikely that new resources would be discovered and the report seems to suggest that the mines were run down and in need of some investment.[2]

In April 1821 a memorandum of agreement was signed transferring the lease for the iron works and mines to Foster. Foster was to pay a royalty of 6d per ton (21 cwt) for ironstone and coal, except for stinking coal and slack for which 4d. was to be paid. He had, however, to pay a minimum royalty of £300 per year.[3]

Foster seems to have been keen to extend his mining enterprise, as in 1822 he leased the rights to the minerals under 200 acres belonging to Willaim Yalverton Davenport on the Broseley Estate. This land was adjacent to that of the Forester estate and comprised largely of mines previously worked by John Onions for his Coneybury Furnace. There is also a possibility that Foster was working limestone on land near the Upper Riddings; however, the only evidence for this is in one documentary reference. The limestone here is thin and, although it has been used for agricultural purposes, its suitability as a flux is not known.[4] As with Jesson and Wright, the pig iron from Barnetts Leasow was converted into wrought iron at Foster's forges. The works probably supplied his forges at Hampton Loade and Eardington as well as those at Stourbridge. In 1821, the year that Foster acquired the furnaces, the output was 2080 tons, indicating that he wasted no time in getting them into full production.[5]

In 1831 Foster also acquired the Calcutts Ironworks and associated mines from the executors of Alexander Brodie. His purpose was to increase the supply of ironstone for his other furnaces and he immediately closed the works, which was by this time obsolete. Foster now had rights to mine coal and ironstone under most of Broseley and Jackfield. It was around this time that he also closed the Barnetts Leasow works which, like Calcutts, would have been out of date and not suitable for further development. Both works were almost completely demolished within a few years; however, some building did remain at Calcutts.

Having closed the furnaces, Foster used the Calcutts site as the hub of his operations, with a mine depot and weighing machine at the site of the old furnaces. The blacksmiths shop was located opposite what is now known as Wynd Cottage near the Knowl. A series of tramways led from the mines to the Calcutts area where the ironstone from the mines was calcined before shipment.[6] Calcining is likely to have been in the open or possibly in the one furnace which remained from the Calcutts Ironworks. The ironstone was then shipped down the Severn from the Calcutts wharf. In 1839 Foster was working at least five ironstone mines and one coal mine; however, he had already sub-let some of the land to the brick makers William Davies and Hezekiah Hartshorne who had opened up clay mines to supply their works.[7] The scale of extraction must have been relatively small as in 1840 there were only 126 people employed as miners in the Broseley area.[8] The ironstone came from the Pennystone seam and, although the output of

the mines is not known for the 21 years from 1859 to 1880, on the annual audit date there was an average stock of 2,900 tons of ironstone and 1,700 tons of calcined ironstone at the Calcutts. The business was profitable, returning around £300 each year. During this period the Calcutts must have been a particularly unpleasant place with piles of smoking ironstone being continuously roasted in open heaps.[9]

In 1869 Foster was operating two mines in Broseley as well as one at the Rock and another at Calcutts. The last Stocking Pit closed on 22nd January 1880 leaving only the Calcutts pit working, and this had closed by 1881. By this time the ironstone reserves must have been all but exhausted and Foster appears to have had no further interests in Broseley.[10] This marked the end of ironstone mining in Broseley, with only a few small mines continuing to produce clay and coal mainly for the brick and tile making industries. The closure came at a time of general depression in Broseley causing the council to comment: "*That looking at the decay of Mining Industry and decrease of population in Broseley it is unwise at present to burden the ratepayers with any further expense to obtain a distributing water supply for the Town.*"[11] The wooded pit mounds of Foster's mines at Barnetts Leasow and the Stocking are the most substantial remains of mining in Broseley and serve as reminders of the long history of mineral extraction in the district.

References

1. Aris Birmingham Gazette, 30th December 1805
2. Certificate of Messrs Onions and Clayton as to the advantage of granting a Lease of the Ironworks and other premises called Barnetts Leasow Ironworks in the Parish of Broseley in the County of Salop to Mr Foster. 20th March 1821. Shropshire Archives 5586/5/4/5
3. Memorandum Lord Forester to James Foster. Shropshire Archives 7/66, Surrender of Lease by Messrs Jesson and Dawes 24 April 1821, Shropshire Archives 7/66
4. Map of part of estate of Lord Forester in parish of Broseley (inc Upper Ridding ?) showing limestone workings for James Foster 1825. Shropshire Archives 5586/13/38.
5. Calcining comprises roasting the ore with coal as a fuel. This removes some of the impurities as well as reducing the moisture content, making it lighter to carry and improving the quality for use in the furnace.
6. Broseley Tithe Map apportionment.
7. VCH of Shropshire volume X, p 275
8. Copies of Fosters account books in I.G.M.T library. The Foster Family – A study of a Midlands Industrial Dynasty, Norman Mutton, University of London PHD 1974 (copy in Shropshire Archives)
9. Op cit.
10. Shropshire Archives DA6/995/2/1/1.
11. Broseley did not get its water supply until 1903. Broseley Local Board Minutes, p267, 7th June 1881.

Jackfield Mystery Man

by Revd. B. D. Shinton

Many will be familiar with the city of Durham and its university, the third oldest provincial university in England. Just before Christmas of last year a letter came from a Dr Alistair MacGregor of Hatfield College, the second of the Durham colleges (and one which pleases me because when it was founded in the 1840s its main building was the old Red Lion, a former coaching inn). Dr MacGregor is tasked with compiling a directory of those Hatfield alumni who had proceeded to ordination. One of these was the Revd Henry Lee, first Rector of Jackfield. First off though, to answer MacGregor's question, I had to say that I could find nothing anywhere about Lee. Certainly there is not a single article at Jackfield church which refers to him. My initial conclusion was that for some reason he had blotted his copy book here. Indeed, I suggested to Dr MacGregor that I fancied that Lee might not have been held in the highest esteem here. However, some details about Lee are now beginning to emerge which may challenge that.

Revd. Henry Lee in later life.

My own copy of Kelly's Directory for 1863, I now discover, shows Lee as Curate of Broseley. This was before Jackfield was carved out of Broseley parish, and indeed Lee became its Rector. Incidentally, in the same year Jackfield church is mentioned as being "in the course of erection". Lee was living at Holly House in King Street, the home now of two distinguished members of our Society. It is opposite what we still refer to as the Button Factory, but on the 1840 Tithe Map

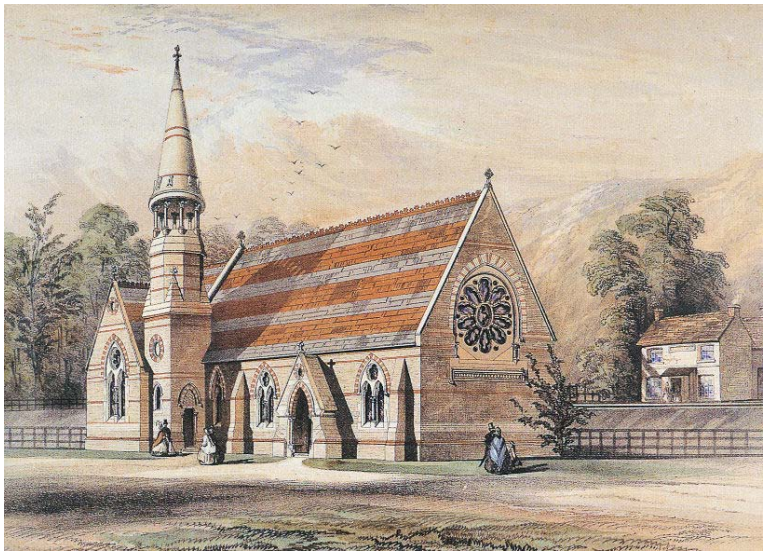
apportionment it is referred to simply as a "*house, building and yard*". At the furthest end of the town from Broseley Church, this late 186 century building of three stories and three bays had and has a coach house. In Lee's day it sat amongst clay pipe works, a variety of pubs and squatter dwellings in an area then sometimes referred to as "Little Mayo". No doubt a suitable home for the curate, but in some contrast to the Rectory which stands amongst grander dwellings in Church Street.

Lee's entry on the 1871 Census records him, then aged 41, as having been born at Maidenhead, Berks (on 27 June 1829); his wife, Mary (38), surprisingly hailing from Bridgwater, Somerset where she was born in 1832. By 1871 he has fathered five, all I believe born in Broseley. He kept four female servants, including a governess and two nurse/domestic servants. There is, though, no mention of a coachman to drive the coach which obviously stood in the coach house.

What we also know is that in 1862 the Revd Henry Lee had, despite what Kelly reports, moved up from being Curate of Broseley to become Rector of that group of settlements in Broseley Parish (Coalford, Lloyds Head, Jackfield, The Werps and so on) which came to be called Jackfield. In the event he proved to be the longest serving of all the rectors of that place.

Some hours spent at Shropshire Archives turned up little of the detail of Lee's ministry at Jackfield. However, the Wenlock & Ludlow Advertiser of 5th October 1878 gives a very full account of an event on his departure for Sheinton. At a presentation in the National School at Jackfield, the Church Wardens presented a handsome pair of silver candelabra (made by Elkington of Birmingham, and therefore presumably plated), a purse of money and a handsomely illuminated Address. This latter speaks of his faithful and diligent service "amongst us over 18 years" (which if correct takes his ministry here back to 1855, when he would probably have been 25/26 years old), his untiring activity and never failing interest. His is described as kind and considerate; a valued and faithful pastor; a bright example of a christian, whose earnest efforts had been rewarded by an abundant increase in scholars. Two of them presented him with what is described as "a very chaste and handsome inkstand".

More gushing plaudits followed, as did "an old inhabitant", Miss Williams, who presented a china cup and saucer (probably made at the Coalport works on the opposite bank of the Severn), bearing the legend "*To The Rev. Henry Lee, presented as a humble tribute of deep respect*



Design for Jackfield St Mary's Church where Lee became the first rector. Note the Severn Valley Railway (1862) and pub behind the church. (IGMT 1976.108)

and gratitude". (Sadly the whereabouts of these artefacts is unknown to me. If anyone does know of their existence I would be very interested.)

One other intriguing item is that Lee, "who was evidently deeply affected" by all of this, in his fulsome reply to the presentation, said that evening "took him back to 1860". To what in 1860 is not revealed. However, he goes on to describe as "a hero" Mr George Pritchard, who of course was High Sheriff of Salop, the owner of the bank at Broseley and the man whose family collected enough money to raise, not only a Memorial Fountain in Broseley, but St Mary's in Church Road Jackfield. So perhaps Pritchard has something to do with persuading him to stay here and take on the Jackfield living.

I am very much obliged to Dr Trevor and Mrs Margaret Hill of Cressage, who have also done research on Lee and have discovered that in 1853, as a 24 year old graduate from Durham, Henry Lee was made priest by the Bishop of Oxford. That was presumably at Christ Church Cathedral in that city. We may contend he spent his year as a deacon at one of the churches in Oxford Diocese. He married Mary Sophia Wollen in 1862 at Torquay, to which place I imagine her parents had

removed. Their eldest son was called Henry Phillips Lee (born 1865), and he married a Harriet Jane Danks. Prior to the marriage, Harriet painted pictures of Sheinton Church and of the Rectory there. The originals are still extant and copies were donated to the Sheinton church for sale at the Christmas auction in 2003. This Henry and his brothers, John Woolen (or possibly Wollen) Lee (born 1867), Herbert (born 1874) and Charles Poole Lee (born 1877), were all undergraduates at Keble College, Oxford. In their day at Butterfield's newly built college they would have been strongly influenced by the High Church ideals the Oxford Movement. That tells us something about Henry senior.

Each of his boys was ordained, one, Herbert, becoming his father's curate. John also came into Shropshire, being, amongst other things, for 15 years chaplain of the Atcham Workhouse; but the most interesting of the offspring was Henry's daughter, Evelyn Ruscombe Lee (1870-1949). Her memorial window in Sheinton church says she "*Loved and shepherded the children of this parish for many years*". More importantly, she became a nun and a deaconess, and served as Sister Evelyn among the poor of St Clement, Notting Hill, London. The Community of St Andrew to which she belonged is still thriving, and moved only recently to Chiswick, W4. Evelyn may well have been one of the first nuns in the Order, which was founded in 1861 in Westbourne Park, W1. The Sisters say that they continue the tradition of serving "in some form of diaconal ministry, including the caring profession."

Lee, as we have seen, went to Sheinton, which even now is a very rural spot, very different from late Victorian Jackfield or Broseley. It too stands beside the Severn. Lee was obviously happy on Severn shore, for on retirement he went to Bewdley, Worcs, where he died on 8 January 1907. It would appear that this Berkshire lad anticipated Houseman in agreeing "*On banks of Thames they may not say that Severn breed worse men than they*".

My search for this man has not ended. The paper evidence suggests to me that when he died he was buried at Broseley. There is no trace of him in the Church burial records, nor of a grave stone in the cemetery. He remains a mystery man at the end of my researches, as he did at the beginning.

Memories of a Shropshire Lad, Part 3

by Dennis Mason

In this third extract from his memoirs(written in 1990) Dennis looks at local transport and describes the highlights of the Broseley year.

Transport

There was no public bus service supplying Broseley until about 1925. Then there arrived one bus - a yellow and black affair which some proprietor from East Shropshire put on and this provided a service a few times a day to Wellington. After a year or two the Midland Red Company put on a more regular service to Wellington and, much later, to Shrewsbury. A service to Bridgnorth, Much Wenlock and Madeley was to follow later still.

Until those days the only means of getting out of the locality, unless one walked, was by train. This entailed a walk to Ironbridge if one was going to Shrewsbury or Bridgnorth, or to Coalport or Coalbrookdale if the destination was Wellington. Although this entailed much arduous walking (especially on the return journey) it is worth reflecting that none of these rail services now exist. Indeed if one wants to get to West Shropshire it is more difficult now for the carless person than it was then, for the train ran from Buildwas to Craven Arms (change at

A Midland Red bus crossing the Free Bridge towards Broseley, probably during the 1947 floods

Buildwas for Ironbridge), a delightful run below Wenlock Edge, which must have been one of the most spectacular in the country. The run to Bridgnorth was also very lovely. It has to be said that in the last few years road transport has deteriorated and, since privatisation of the bus services, is very poor indeed and in some cases non-existent. Back to square one!

In general, except for the odd trip to Shrewsbury, people didn't go far out of the district and if they did they walked. However, far longer journeys were taken on foot than would have been dreamed of today. A walk to the Wrekin was not uncommon and one to Bridgnorth was quite common. There were few cars about and these few were owned by the hoi polloi; the ordinary person would not have dreamt of asking one of them for a lift to some local centre and would have had short shrift if he had. Local boys often provided themselves with handmade notebooks and stood 'taking car numbers'. All the few local numbers were known but occasionally a strange vehicle would come to or pass through the place. A Rolls once came through and created quite a sensation, and lucky indeed were the fortunate boys who had obtained that number. It was still early enough for many cars of the first Shropshire registration (AW) to be about. Indeed I remember the second registration number (NT) coming in and the great excitement of the few small boys who had secured some of these numbers.

A very, very few had motorbikes. These were the days when Britain led the motorcycle world. Indeed, there were no comparable foreign motorbikes for many years. The only foreign motorbikes one would ever see in the countryside were, very rarely, an Indian or a Harley Davidson, both American. It is with sadness that I write these words when the only machines that one ever sees now are Japanese, with a very occasional Italian one and still more rarely a British Triumph, the last of the old British makes.

Those were the days when there were the B.S.A., Triumph, A.J.S., Calthorpe, Cotton, Douglas, Rudge Whitworth, Sunbeam, Royal Enfield, Panther, Norton, Scott, Ariel and not a few others, including the two strokes Coventry Eagle and Francis-Barnett.

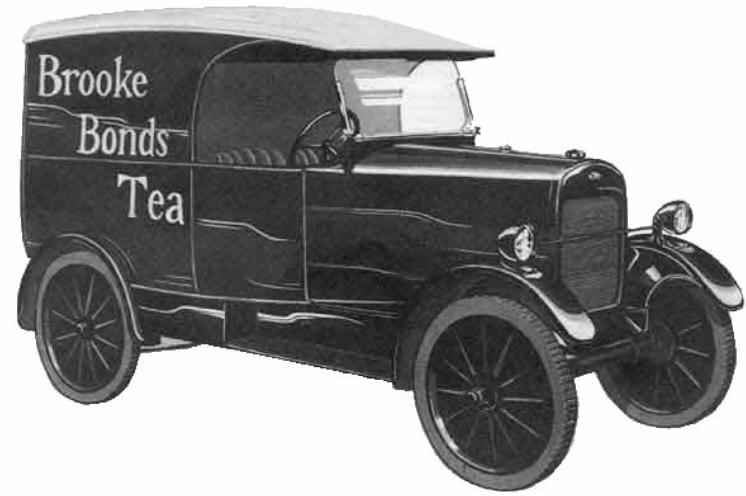
The tiny elite who actually owned motor cycles were looked upon as demi-gods by the local youth and indeed they were quite a sporting lot. The leading five were Teddy Instone with a Norton, Luther Bennett with a Scott, Rich. Simmonds with a Triumph and the Lloyd brothers, who each had a long-stroke Sunbeam.

On Sunday mornings some or all of these repaired to Cound Flat, eight miles away, and let their machines full out on that mile of straight road, that being the only straight and flat piece of road of any length for miles around. (In that respect there has been little change since.)

Luther Bennett's Scott had received so many refinements from its owner that it had almost ceased to be a Scott at all, though the unmistakable Scott engine could be heard a mile away when Luther was 'letting it out'.

A few boys and girls possessed push bikes, but they were usually old machines of uncertain vintage which had passed down through the family like a pair of old trousers. They were sturdy old models, though, mostly with "look up and beg" handlebars, and stood an immense amount of punishment. A new bike cost just under £4 with an extra pound added if it possessed a Sturmey-Archer 3 speed gear. This figure was wildly beyond the means of all the boys and girls and even of the 14 and 15 year olds who had started to work, for most of their nine or ten shillings had to be paid into the family exchequer.

Until the advent of one solitary charabanc, Mr. Jack Oakley's 'Muz', any outing was by horse brake. As a small boy I made a number of journeys in these interesting vehicles. They took a long time to cover the 15 miles to Shrewsbury or Church Stretton, but each journey was full of interest and there was plenty of time to look around.



Brooke Bonds Trojan Van

The Shire horse and the Clydesdale were used for commercial transport long after the brakes had disappeared. Goods from Iron-bridge Station were brought to the village by dray, drawn by a nodding old horse with one speed only - very slow!. Bread and milk were delivered by horse and buggy and some of the farmers' wives made weekly deliveries of farm butter and eggs, usually in a 'governess trap', a much admired mode of transport. Quite a sight too was the delivery of grain to R. A. Instone & Son in the Square. This firm ground their own grain and the petrol engine made a merry noise several days of the week, when the grain was being ground. The grain was delivered by a huge dray pulled by half a dozen Shires until the earlier 'twenties' and later by a steam wagon. The grain was raised by pulleys to the upper storey (the door is still there) and lowered into the grinding machine on the ground floor.

Almost the only commodities delivered by motor were the mail and tea to the shops. Brook Bonds tea was delivered by the remarkable Trojan van, which had a two cylinder engine and solid tyres!. I believe that these vans were the last on the road to use solid tyres and they certainly remained in use long after the pneumatic tyre was the norm.

Until a year or two before the War the funeral hearse was a black decorative vehicle drawn by horses. The motor hearse was beginning to be used by the thirties. It is perhaps wonderfully illustrative of the decline in human behaviour to reflect on the attitudes to passing funeral processions. Even the roughest man came to a halt and took off his hat when a funeral procession passed. I have only seen this happen occasionally in recent years, yet then it would have been a mark of appalling ignorance not to do so.

One change for the better, though, is that 'black' is no longer considered obligatory by mourners, even those close to the deceased. It was then, and the code of social conduct was so strong that at all costs the bereaved mustered together a few garments of black. There must have been many poor people whose resources were strained to the utmost to attain this foolish stand of 'respectability'. Similarly a funeral repast had to attain a certain standard, and boiled ham and tongue (both expensive even then) were as essential to a 'respectable' funeral as the hearse itself. This attitude had its roots in the fairly recent past. Before the five shillings old age pension at seventy was introduced by David Lloyd George in 1908, there were not a few 'paupers funerals' - the ultimate disgrace in those days, the whole unhealthy attitude stemming from the hypocritical view of the Victorians that to be poor was a crime in itself.

Great Western Dean Goods locomotive number 2538 crossing the Brymbo Bridge at Jackfield on a passenger train bound for Bridgnorth

Many people had not been beyond Shrewsbury in their lives and indeed this beautiful town (sadly despoiled to the eternal shame of its rulers over the past 30 years) was something of a Mecca. All Salopians were proud of Shrewsbury, which was then generally known as 'Salop', as it is the older of us to this day. Shrewsbury Flower Show was the highlight of the year and everyone who could arrived there on the Thursday (the Show until a few years ago was held on the Wednesday and Thursday late in August). Thursday was the cheap day (2/6d) and few could afford the luxury of Wednesday's five shillings. Broseley being a great gardening place, attendance at Shrewsbury Show was considered almost a duty by the many gardeners in the town. The Severn Valley railway line from Ironbridge provided a good service on that day and cheap trips ran all day. This old line indeed kept our district in touch with the outside world, even if it was a two-mile walk to the station (placarded 'Ironbridge & Broseley', blithely ignoring the precipice between Ironbridge and Broseley!). In the last few years before the War, when there was more movement by the population, the GWR ran a shilling return excursion trip to Shrewsbury from Ironbridge at 6 o'clock each Saturday evening, to return on the last train if one wished. This puffed out of Shrewsbury at 10.30 and was usually full. The chief disadvantage

of returning on the 10.30 train was the boisterous behaviour of those who had indulged well in Shrewsbury's excellent beer!

No one can regret the great opportunities for travel that the motor car has provided, and certainly a wider outlook and a greater knowledge has been engendered by the mass production of it and the increased prosperity of working people which has enabled them to acquire cars. But as in all human benefits, there is the other side of the coin - the loss of much agricultural land for the construction of roads, the evil stench of petrol and diesel fumes, but most of all in the slackening of the close-knit social life and dependency on each other which a land bound community such as a Shropshire village enjoyed.

Highlights:

Life in a simpler age at least has the advantage of giving more concentrated enjoyment on those relatively few occasions for celebration.

Guy Fawkes' Day was an important day of the year for boys, much more important than it appears to be now. Only one shop in Broseley sold fireworks, Nobby Clark's in Church Street. The shop was an antique shop of sorts, but it seemed completely dead until late October, when it leapt into life for a brief fortnight. I do not know how this curious combination of antiques and fire-works took place, but for many years it was Broseley's only source of fireworks.

Everyone contrived to save a few pence and beg a few more for this occasion. Yet there was none of this offensive "Penny for the Guy" business, which is beginning to creep in from less desirable quarters. A good bang could be had for a halfpenny in the shape of an "Empire Gun". "Thunder Flashes" at one penny were more professional looking jobs but with about an equal bang. Most fireworks were a halfpenny or a penny. Much was expected for anything which rose to the dizzy cost of twopence, though expectations were not always realised. You could get twopenny rockets, though the better sort were a little dearer and thus usually out of reach.

A group of children would gather at the home of one of their number whose father had made him a guy and, during the burning, would pool their meagre supply of fireworks and let them off one at a time to spin out the enjoyment. The children of one of the local doctors always had a good show in the grounds of their home. It was said in great awe that as much as two pounds were spent on their fireworks and those without fireworks of their own would try to get within viewable distance of this local Crystal Palace display.

The Sunday School party was another great occasion for those who went to church or chapel or could slip in unnoticed with someone who did. It was mandatory that you took your own mug (plates were provided and saucers largely ignored). This was tied around your neck with a piece of string and strict and stern were the instructions to bring it back with you.

I suppose this was the only time in the year when some of the children had a really good 'blow out'. Besides sandwiches and slab cake there were fancy cakes and some of the more business-like elements took a bag as well as a mug, in which to secrete a few cakes, and anything else that might be going. These would grace the table of the more impoverished families the next day!

The uproar was earsplitting! The presiding minister had to bang on the table many times for grace to be said. This function was the time when strategy was laid for acquiring a favourite cake and immediately the prayers ended there was a sea of grabbing hands.

Some were professional gatecrashers. There were then four or five Sunday Schools in the place and it was not unknown for some shady characters to attend every one of the parties, returning home with a well stocked bag from each of them!.

The Sunday School Anniversary was another great occasion. The church and all the chapels held these in the summer. The girls taking part always contrived to appear on the platform in a smart white or light frock which, if not new, had always been washed and ironed specially for the occasion.

All these Sunday Schools had their summer outings. It was not easy to gatecrash one of these, but a surprising number of children (including some very unlikely ones) attended one or other of the Sunday Schools and so most of them had an outing a year of some sort, usually to somewhere not far away, but an enjoyable day and a free tea thrown in for all that.

Another highlight of the year was Broseley Fair. This is still held but is a shadow of its former self. The Fair Day is the last Tuesday in April, but the fair usually arrived on the previous Thursday and started operating on the Friday evening and continued on Saturday, Monday and Tuesday afternoons and evenings.

There was great excitement amongst the juvenile population during the week the fair arrived. As it was always at Bridgnorth immediately

before coming to Broseley, the local youth were always certain from which direction it would arrive. The few fortunate ones who owned cycles dashed out along the Bridgnorth Road like Pony Express riders in search of the vanguard of the Fair, usually a caravan or two and the swing boats. These journeys along the Bridgnorth Road (usually called the New Road in those days, as it had been laid down as a turnpike road but a century before) continued abortively until, early in the evening, one of those adventurers would be seen pedalling furiously down the road screaming to all and sundry "It's coming - the fair's coming!". The actuality was a van or two and a loaded wagon, which had reached Linley, a mile and a half away and would take some considerable time to reach Broseley; but the fortunate carrier of the news was treated like the character who brought the good news from Aix to Ghent!

Thereafter the rest of the fair trickled through, culminating in the *piece de resistance*, the great steam engine pulling the huge container housing the roundabout and the accompanying steam organ. This impressive mammoth chugged along the New Road and on to the Fair field, surrounded by excited, shrieking children. The present Fair Field, down the Dark Lane, has been Broseley's Fair Field for over 50 years, but I remember two previous ones, where Wilkinson Avenue now is and, earlier, where the older Bridgnorth Road Estate now stands, both sites being then grazing fields.

There were still 'hobby horses' as we called the roundabouts, but electricity seems so much more clinical and less romantic than steam. Although the roundabouts were motivated by electricity even then, the power was manufactured on the spot by the giant steam engine which had brought the roundabout there. Indeed, the sight of the majestic monster driving the attached dynamo providing power and light for the whole fair was not the least attraction to be sampled by visitors to the Fair, and it had the added attraction that it was free.

As boys and girls we had spent our few pence long before the Tuesday, the official Fair Day, and had scrouged from all possible sources too. But we could still trail along after the single men in employment with a few shillings in their pockets and 'ooh' and 'aah' in admiration as the clay pipes broke under the impact of the .22 lead pellets of the air rifles or as the heavy, artificial coconuts were dislodged from their sawdust lined nests.

Yes, it was a great time, was Broseley Fair and when all the hustle and bustle and the noise was over you felt somehow that you had played a small part in a major event of the year.

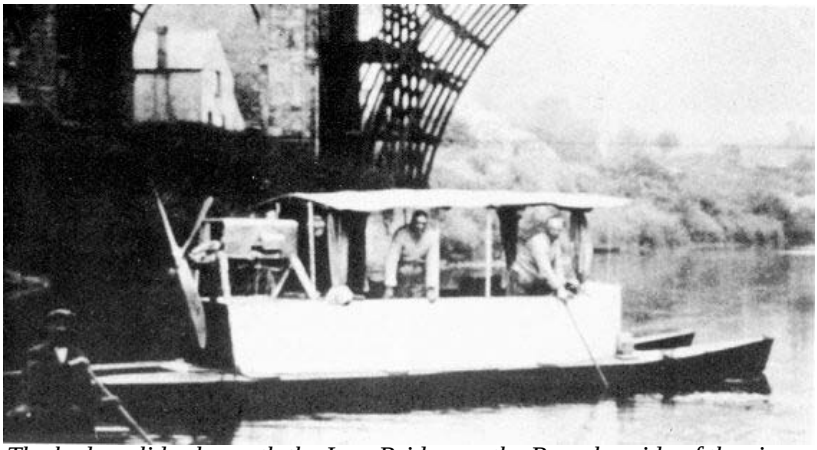
Unusual Craft On The Severn

In the last issue of the Journal (no. 27, 2005, pp 46-48) we published extracts from the diary of Mary Ann Lewis of Ironbridge, including the following: 'A glider came up the Severn on October 27th 1923, went as far as Shrewsbury,came back on Sunday 28th ...it struck the Free Birdge.....catched (sic) the ferry wire at Potter's Loade [Highley] and overturned'.

The incident was reported in the Wellington Journal on 3rd November 1923 (printed below). A similar craft appears to have come up the river some eleven years later and was photographed under the Iron Bridge.- Ed.

"Exciting Incident on Severn

Considerable interest was aroused in Highley and district on Saturday by the appearance on the river of a hydro-glider. The designer of this ingenious craft is Mr. Walter F. W. Davies, of Dudley. As its name implies it is designed to glide across the top of the water at great speed and does not take more than a few inches of water. Saturday's experiment was the third of its kind. On the first occasion a successful trip was made from Stourport to Arley. Later it came as far as Bridgnorth. Saturday's trip was intended to extend as far as Shrewsbury,



The hydro-glider beneath the Iron Bridge on the Broseley side of the river. Note Harry Rogers, at the left, in his coracle.
Derek and Gwen Rowlands (The Ironbridge Book)

but within five miles of their goal they were defeated by the elements. A delightful trip was experienced by the privileged occupants of the craft until, a few miles beyond Iron-Bridge, they "glided" into flooded waters. The pilot and designer, Mr. Davies, stated in the course of an interview with our representative, that he "taxied" to find the course of the river, and having found it and got well away, they ran into a hurricane with the result that the boat and its occupants were driven ashore. In this position they had to anchor for the night. After a little adjustments on Sunday morning it was deemed advisable to go homewards. All went well on the return journey until Iron-Bridge was reached, when the currents went awry, with the result that the craft crashed into the bridge. Matters were adjusted in a short time; away went the boat and a successful trip was made as far as Bridgnorth, and here a stay was made for the night. On Monday morning the boat left Bridgnorth full sail ahead, but unhappily the ferry crossing at Potter's Loade, near Highley, proved to be its undoing. At this point there is a rope across the river, and although the designer and pilot, Mr. Davies, was aware of the fact, the conditions of the river rendered a collision unavoidable. The three occupants had an unexpected immersion, but they were not daunted. They swam after their upturned craft and clung to it, drifting along to the bank of the river. At the cottage close by were held out the hands of the Good Samaritan, and the passengers soon crossed the ferry. A taxi was in readiness to convey them homewards, and, to use the words of the designer and inventor of this novel form of navigation, "the whole concern behaved exquisitely." The passengers aboard were Mr. W. F. W. Davies (designer and pilot), Mr. F. Brookes (engineer of Oldhill), Mr. A. L. Fisher (cinema photographer of Pathe Freres, London), and Mr. Sidney Bray (Dudley)."

The Pathe News film clip of this glider on the Severn at Bewdley can be found at www.british.pathe.com . Search for 'severn'. The film is entitled "Riding the River".

WILES & LEWIS'

ARISTON BEEF SUET.

MARGARINE
DRIPPING
LARD COMPOUND

COOKING FAT
FINEST EDIBLE
FRYING OIL
VEGETABLE BUTTER

19

M

Bought of **J. ROW,**
Confectioner,
1, High Street, BROSELEY.

Bread	3	0
Goods	1	82
Sugar		7
	5	32

Paid A. Rowe
May 29. 1915