

Metal transport through the Stroudwater Navigation in the 1790s

The 1790s saw a remarkable increase in the transport of metal and metal products over the Stroudwater Navigation, almost all of it to the Thames and Severn Canal at Brimscombe Port where cargoes were trans-shipped into the shorter Thames barges. The trade grew over the decade from nothing in 1790 to over 3500 tons in 1799. In total 4600 tons of tin, 6500 tons of copper, 9000 tons of Iron and 3500 tons of guns were recorded as travelling over the Stroudwater Navigation during the decade, though examination of the detailed entries in the Thames and Severn Export books indicates that even more of these commodities must have been delivered in cargoes recorded on the Stroudwater as Sundry Goods.

Where did all this material come from? Where did it go to, and why was it being shipped along the Thames rather than the more usual routes along the coasts of Britain?

To understand this last point, you have to understand that vessel owners were reluctant to use the coastal route to London while there were hostilities with France. The Royal Navy was busy press-ganging merchant seamen as they tried to increase the size of their fleets using captured French and corsair vessels, and by building new battleships in London and Portsmouth. In 1795 the Royal Navy obtained a quota system requiring each county to provide a certain number of “volunteers” for the service. By then the Dutch Republic had joined the French Republic in declaring war on England, and by 1796 Spain had joined them. Mutinies at Spithead and The Nore in 1797 further exasperated the situation, with the Nore mutiny leading to a month-long blockade of the mouth of the Thames in May.¹ In August 1798 Nelson fought the Battle of the Nile in the Mediterranean, making the new battleships, such as the 74 gun *HMS Renown*² being built at Deptford and 98 gun *HMS Temeraire*³ launched at Chatham Dockyard in 1798 even more vital to the defence of Britain.

Where did the guns come from, and go to?

In 1798 the tonnage records of the Stroudwater Navigation⁴ show that Samuel Simmons brought 448 tons of guns up the Stroudwater Navigation to Brimscombe Port, the transshipment point of the Thames and Severn Canal, as part of a total of 860 tons of guns sent eastwards. Samuel Simmons also brought 310 tons of iron to Brimscombe in 1798, so there could be a connection between the guns and the works supplying the iron, which could also have been of use building the new ships. Normally heavy goods such as this would have gone by sea from Bristol. Unfortunately, the Stroudwater tonnage books for this period do not record where cargoes came from, so a search was made in the records of the Thames and Severn Canal held in the Gloucestershire Archives at the Heritage Hub in Gloucester.

Detailed information on cargoes is available in their Thames and Severn Import and Export Books, but unfortunately the surviving Import book for the 1790s only covers September 1795 to February 1797, and Samuel Simmons only started bringing guns to Brimscombe in July 1797. Fortunately, the Export Books for the period from August 1797 to the end of 1799 are available, though these only show where the guns and metal were shipped to.

¹ [https://en.wikipedia.org/wiki/History_of_the_Royal_Navy_\(after_1707\)](https://en.wikipedia.org/wiki/History_of_the_Royal_Navy_(after_1707))

² [https://en.wikipedia.org/wiki/HMS_Renown_\(1798\)](https://en.wikipedia.org/wiki/HMS_Renown_(1798))

³ [https://en.wikipedia.org/wiki/HMS_Temeraire_\(1798\)](https://en.wikipedia.org/wiki/HMS_Temeraire_(1798))

⁴ Tonnage Books 1 & 2, <https://stroudwaterhistory.org.uk/archive/document/15086>

On 29th November 1796 the T&S Import Book records a cargo of 2 “great” 18-pound guns, 7 12-pound guns, 485 wrought iron bars, 737 cast iron bars, 760 castings and 87 cast iron plates weighing in total 43 tons as having arrived from the Calcutt Iron Works on the *Nancy*, Master Thomas Ball, for delivery to Alexander Brodie of Carey Street London. The Stroudwater Navigation tonnage book shows a delivery of 43 tons of guns on the 30th November, but records it as being delivered by Aaron Crumpton, who was probably the owner of the boat.

Other T&S entries are equally hard to reconcile with those of the Stroudwater. On January 14th 1797 the Stroudwater records show 58 tons of guns being delivered to Brimscombe by George Phillips. Presumably this is the same as the two cargoes recorded by the T&S as being received on 13th January on the Trow *Hope*, Master George Wheelwright, from Broseley. This delivery consisted of 16 12-pound guns for Isiah Millington of Thames Street, London, and 36 12-pound guns for John Rowe, to be sent on to Mr Wilkinson’s Wharf in Rotherhithe. The 5 12-pound guns received at Brimscombe on the 16th January for John Rowe from Thomas Rowley of Stourport on the Trow *Rolleston* are recorded in the Stroudwater tonnage books as 5 tons of Sundries on the 19th January.

Whilst there are no records of Samuel Simmons imports to Brimscombe there are, fortunately, records of a cargo, consisting of a chaff machine and a tub, that he took back to the Calcutt Iron Works in January 1799. This shows that he was Master of a Trow called *Calcutt* owned by Alexander Brodie.

Another 690 tons of guns and iron were brought to Brimscombe by Samuel Simmons in 1799. There were two deliveries recorded on 26th January 1799, one of 56 tons brought by Samuel Simmons and one of 59 tons brought by John Easthope. The equivalent entry in the T&S Export Book records two outbound loads. The first, recorded for the 24th January, consists of 8 32-pound guns and 6 18-pound guns weighing a total of 34 tons, sent to A Brodie in London at a cost of 4s (20p) a ton. These were shipped together with 50 tons of pig iron sent to Crawshay & Co in London, who normally got their iron from the Cyfarthfa Ironworks near Merthyr Tydfil.⁵ The second shipment, on 26th January, consisted of 11 32-pound, 9 18-pound and 6 12-pound guns, totalling 54 tons, for delivery to A Brodie in London.

Wikipedia⁶ tells us that HMS *Victory* was armed with smooth bore, cast iron cannon. Initially she carried thirty 42-pounders (19 kg) on her lower deck, twenty-eight 24-pounders (11 kg) on her middle deck, and thirty 12-pounders (5 kg) on her upper deck, together with twelve 6-pounders on her quarterdeck and forecastle. The 42-pounders proved too heavy and cumbersome so, in 1803, after the Battle of the Nile, they were replaced by 32-pound cannons. From this we can judge that Mr Brodie was involved in rearming the Royal Navy. One possible ship was the second-rate, 98 gun *HMS Temeraire*⁷ launched at Chatham Dockyard in 1798 and made famous in J M W Turner’s painting of her being tugged to be broken up in 1838. This was the boat that followed the *Victory* during the Battle of Trafalgar.

⁵ https://www.ggat.org.uk/ynys_fach_excav/crawshays.html

⁶ https://en.wikipedia.org/wiki/HMS_Victory#Construction

⁷ [https://en.wikipedia.org/wiki/HMS_Temeraire_\(1798\)](https://en.wikipedia.org/wiki/HMS_Temeraire_(1798))

A search for information on the Calcutt Iron Works threw up more information. From Wikipedia⁸ we learn that the site of Calcutt Iron Works at Jackfield, on the west bank of the Severn in Coalbrookdale, was leased in 1767 from Sir Onesiphorus Paul, clothier of Rodborough who had been High Sherrif of Gloucestershire in 1760, by George Matthews, who built two furnaces, the bellows being operated by water wheels; the site originally produced pig iron.

In 1786 the lease was bought by Alexander Brodie, a Scottish blacksmith living in Carey Street, London. In the foundry he produced mainly a ship's stove (to his patent design) and cannon. By 1796 he was making 32-pound cannons, and by about 1804 there were four furnaces. It was one of only three sites in the country with a steam-powered boring mill; cannons were bored eleven at a time. They were shipped to Bristol for naval use and also, during the 1790s when travel was restricted through the Channel, to London via the Stroudwater and Thames & Severn Canals.

In 1811 the, after Alexander Brodie's death, an advertisement recorded in Graces Guide⁹ was placed for the sale of the "Calcutt Iron Works on the banks of the Severn, in the parish of Brozley, in the county of Salop" that details the plant, including a Blast Engine, a Water Engine, three Coal Winding Engines, a Canon Boring Engine, a Boring Mill and a Turning Mill.

Andy Dingley has provided, through CreativeCommons¹⁰, this image of a model of the Calcutt Iron Works in a diorama at the Museum of the Gorge, Ironbridge. It later became the site of the Jackfield Tile Museum.¹¹



⁸ https://en.wikipedia.org/wiki/Calcutts_Ironworks

⁹ https://www.gracesguide.co.uk/Calcutts_Ironworks

¹⁰ https://commons.wikimedia.org/wiki/File:Calcutts_Ironworks,_diorama,_Museum_of_the_Gorge,_Ironbridge.jpg

¹¹ <https://www.ironbridge.org.uk/explore/jackfield-tile-museum/>

Where did the other iron cargoes come from, and go to?

The Thames and Severn records show that, as well as iron from the Cyfarthfa Ironworks near Merthyr Tydfil, managed by Richard Crawshay, Crawshay and Co in London, managed by his son William Crawshay, also received deliveries of "Ketley melting pig iron" from the Ketley Iron Company in Shropshire. One 48 ton load was delivered from Coalport, in Coalbrookdale, by Ben Yates in *Betsy* in February 1797. They are also recorded as handling iron from William Reynolds¹² who had iron works at Donnington Wood in Shropshire, as well as being manager of the Ketley iron works

In 1789 Jeremiah Homfray was the prime mover in initiating iron working at Ebbw Vale. Shipments from these works were sent in 1796 to William Forman at Honduras Iron Wharf, Bankside, Southwark. One shipment came from Cardiff in the schooner *Disney* owned by J Perry & Co, which had to be unloaded at Newnham for transhipment to Brimscombe. Both Perry and Disney were proprietors of the Thames & Severn Canal.

Other suppliers of iron included R Wright, whose iron came from the Midlands via Stourport, and Snedshill & Co of Shifnal, Shropshire, who sent pig iron from Madley Wood to Thomas Ratton & Co in London and to James Corbett on Bankside in Southwark, who also received pig iron from the Banks & Onions works at Broseley in Coalbrookdale.¹³

Iron wire was also brought from the Tintern Abbey Ironworks works at Tintern by Ben Young for onward transmission to George Gadby at the Sea Police Office in the Royal Exchange, who also received tin from the Abbey works at Monmouth and from Redbrook on the River Wye.

Where did the copper come from, and go to?

During the 1790s some 6000 tons of copper was sent to Brimscombe Port for onward transmission. Where did this come from? Where did it go?

In the 1700s Cornwall produced three quarters of the copper mined in Britain. Early in the 18th century Cornish copper was shipped to Crews Hole and Conham, on the River Avon at the edge of Kingswood Forest above Bristol, for smelting using Kingswood coal,¹⁴ and to Swansea, where over 50% of the Cornish copper was being smelted by 1750s. By the 1790s this trade had been taken over by Thomas Williams, a partner in the Parys and Mona Mine companies in Anglesey.¹⁵ Williams owned the Middle and Upper Bank smelting mills at Swansea and the Temple Mills on the Thames at Bisham, just above Marlow, Bucks.¹⁶ He also owned another copper mill on Colne Brook, at Wraysbury, further down the Thames opposite Runnymede.¹⁷

Machinery was already in use at Temple Mills which could roll out thin sheets of copper for copper-bottoming ships, but these initially had to be nailed or bolted to the hull of the ship with iron bolts. Though the copper was impervious to rust, the iron deteriorated and the ship became like a pincushion and slowly sank to the bottom. Two famous French ships were sunk in this way. Williams

¹² https://www.gracesguide.co.uk/William_Reynolds

¹³ https://www.gracesguide.co.uk/Banks_and_Onions

¹⁴ <http://www.troopers-hill.org.uk/ArchiveApr2012/history.htm>

¹⁵ [https://www.gracesguide.co.uk/Thomas_Williams_\(1737-1802\)](https://www.gracesguide.co.uk/Thomas_Williams_(1737-1802))

¹⁶ <https://templemillisland.com/island-history/>

¹⁷ <https://www.british-history.ac.uk/vch/bucks/vol3/pp320-325>

eventually found a solution by patronising an inventor of copper bolts and selling ‘Westwood and Collins Patent Bolts’. Westwood had invented a cold rolling method for copper bar which gradually reduced it by passing it through grooved rollers while drawing it out to the required thickness. In 1784, the Admiralty ordered all new ships to be fitted with these patent bolts. Williams sold both the copper sheets and the bolts, and he even sold them, through a travelling exhibition set up by Pascoe Grefell, to the French, Dutch and Spanish Navies.

According to Wikipedia¹⁸ many of Williams copper works made goods for use in the African trade. These copper ‘trinkets’ were largely exported to Africa for use as payment for slaves, who were then transported to the West Indies and sold. The proceeds were then used to purchase commodities for import into Britain. Williams claimed to have invested £70,000 in this trade and petitioned parliament in 1788 when a bill was being discussed to prevent British ships from carrying slaves.

From the tonnage records of the Stroudwater Navigation¹⁹ we know that John Sims, Master of the *Mayflower*, brought up 26 tons of copper to Brimscombe Port on both the 22nd and 26th January 1799. We also know from the Export records of the Thames & Severn Canal²⁰ that on the 29th of January 464 cakes of copper were forwarded to Thomas Williams at Temple Mill, and 436 cakes of copper were forwarded to Wraysbury.

It is not always so easy, however, to reconcile entries in the books of the two canals. For example, the T&S Import book for 16th November 1796 records John Sims bringing copper from JB Thomas’s warehouse at Gatcombe to Brimscombe Port for the English Copper Company (269 rolling copper plates and 52 boxes of Japan copper) and for Edward Hill (318 cakes of copper). But the only record for copper imports that month in the Stroudwater tonnage records is for 52 tons of copper brought by George Moore on the 13th November.

At Milking Mead, in a narrow coombe in the cliffs just upstream from Gatcombe, there was a timber yard that belonged to the Oatfield Farm estate owned by JB Thomas in which there was a wharf with a warehouse adjoining that had originally been built by his father to load Forest of Dean bark into trows called *Susanna* and *John Birkin* that took the bark to Ireland.²¹ Bark from the Stroud valleys was often shipped from Newnham and Gatcombe in the 1790s, presumably for onward shipment to Ireland.

We know that the Gatcombe warehouse was used as a transit point by a number of copper suppliers, including the Maigium Copper Works in Glamorganshire and the Birmingham Mining and Copper Co, who took over the Tyns smelting works in the Tawe valley at Swansea.²²

The English Copper Company was established in 1691, as the Company of Copper Miners in England, by Sir Joseph Hearne at Lower Redbrook on the Wye.²³ The Lower Redbrook works continued under the Copper Miners Co until 1790, when they were sold to the ironmasters David and William Tanner.

¹⁸ https://en.wikipedia.org/wiki/Thomas_Williams_of_Llanidan

¹⁹ <https://stroudwaterhistory.org.uk/archive/document/14265/>

²⁰ <https://gloucestershire.epexio.com/records/TS/4/4>

²¹ <https://www.british-history.ac.uk/vch/glos/vol5/pp14-46>

²² https://www.gracesguide.co.uk/Birmingham_Mining_and_Copper_Co

²³ https://www.gracesguide.co.uk/English_Copper_Co

The Tanners converted them to ironworks and later made tinfoil there (probably from 1792).²⁴ In 1742 the English Copper Company purchased the Melincryddan Copper Works near Neath. Many shipments of copper were sent from Brimscombe Port to their premises in Bush Lane, in latter half of the 1790s. Interestingly the first cargo of copper which was sent to London in 1798 was marked for the attention of Governor & Co, Copper Miners, the original name of the English Copper Company.

Quaker John Coster established the Upper Redbrook Copper Works in 1691, but this was closed soon after the formation of the “United Brass Battery, Wire and Copper Company of Bristol, Esher, Upper Redbrook and Barton Regis” in 1734. In 1787 advertisements appeared in newspapers across the country advertising the sale of 'All the Works, Mills, Estates and Utensils of the United Brass Battery, Wire and Copper Company of Bristol'. By March that year the company had been sold for just £16,000. Through a complicated system of purchase the company reorganised with a very similar ownership as before but with the company under the direction of Mark Harford and five others of his family and four other stock holders of the closed company. This 'new' business was named Harfords and Bristol Brass and Copper Co.²⁵ This new company started to take interest in copper smelting in South Wales by purchasing part ownership of works at Upper Fforest near Swansea and running down, if not finishing, with its copper smelting operations at Baptist Mill on the Avon two miles east of Bristol.²⁶ Some of the copper sent from Bristol to Brimscombe Port may have come from this company on John Gower’s trows *Betsy, Prudence, Mary and Birmingham*, though Gower’s boats also brought cargos from Gatcombe and South Wales. In June 1798, for example, they took “copper dust” and “pickle” to Gatcombe for onward transmission to Maigium Copper Works in Glamorganshire. Pickle was used to extract copper.²⁷ At least one consignment of 36 casks of brass was sent to John Buckingham in London from Bristol. Another cargo sent from Bristol included 224 boxes of tin, and 308 cakes of copper.

Not all the copper was exported eastwards. There was at least one delivery made in the T&S trow *Frigate Forcible* to Stourport in June 1798 that included 289 cakes of copper for the Cheadle Copper Company, who manufactured copper wire using copper from Ecton in the Manifold Valley.

Where did the tin come from, and go to?

The situation with tin is much less clear. Items recorded as tin in the Stroudwater records are actually references to boxes of tin plate²⁸, rather than tin ore or rolls of tin plate. A lot of tin was also imported from Bristol by the regular carriers of sundry goods, so is not recorded in the specific tonnage for tin. In nearly all cases the weight of cargoes of tin being exported from Brimscombe is less than the weight of cargoes being imported according to the Stroudwater records. Cargoes exported from Brimscombe were normally expressed as so many boxes of tin plate. Tin plates were typically packed in boxes of 112 sheets of 14 inches by 20 inches plates. A box weighed approximately a hundredweight.

²⁴ https://www.gracesguide.co.uk/Redbrook_Ironworks

²⁵ https://www.gracesguide.co.uk/Harfords_and_Bristol_Brass_and_Copper_Co

²⁶ https://www.gracesguide.co.uk/Baptist_Mills_Brass_Works

²⁷ https://nancythamilton.com/techniques/soldering/on-pickle-crock-pots-and-baking-soda/#What_are_pickle_and_pickling

²⁸ <https://en.wikipedia.org/wiki/Tinplate>

The Stroudwater tonnage books show that between 1794 and 1796 Joseph Shetland brought tin to Brimscombe Port, and then returned with small cargoes of sundries to either Redbrook or Monmouth on the River Wye. Presumably this tin came from the tinplate works created by ironmasters David and William Tanner at the Lower Redbrook works, on the site of the former copper works. Much of it was shipped to William Tanner, who lived at 15 Queenhithe, London. Later cargoes from Redbrook went to George Gadby, whose address was the Sea Police Office at Royal Exchange.

James Pride also brought a lot of tin to Brimscombe in his trow *Sally*, but rarely seems to have left the canal, except for taking a couple of loads of stone to Gloucester. It seems that his tin was sometimes off-loaded from the Thames and Severn schooners at Framilode. Some of it, however, may have come from the tinplate works of Purnell & Co at Framilode.

Another trader who seems to have mostly worked locally was John Longney, who brought copper and tin to Brimscombe. The copper came from Gatcombe, and Longney probably took the bark whose destination was given as Newnham to JB Thomas at Oatfield Farm, Gatcombe. It may have been from Gatcombe that John Longney imported forest coal for Dudbridge and Stroud in 1791-2 before switching to copper and tin for transport on to London from 1793. This tin could have come from Redbrook, Bristol or from South Wales.

The T&S records show that customers in London who received regular deliveries of tin included John Smith in Canon Street, Joseph Miers in Newgate Street and James Maze. Only a few of these deliveries could be matched with shipments along the Stroudwater. Miers tin often came from Bristol as part of a general cargo of sundry goods. Joseph Dawson also received tin from Bristol.

As the above shows, the Stroud Valley canals played a vital role in linking the smelting industries of the Bristol Channel and River Severn to London and the south east of England during the 1790s, while trade was restricted in the English Channel.

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