Durham City Freemen

The Joiners' Guild

Contents

Foreword

In 2016 the 'Freemen' established a History Group and embarked on a project to explore the history and heritage of their eight remaining guilds/companies, using a wide range of archive material, together with artefacts discovered and recovered from the bed of the River Wear beneath Elvet Bridge, by Gary Bankhead. The group comprised of both 'Freemen' and local people who had an interest and passion for the heritage of their city.

Their work does not purport to be an academic study, but has been created for the general public, with the aim of shedding light on the history of the guilds/companies, sustaining the heritage of the Durham City Freemen for future generations.

The trade guilds/companies and Freemen held power and influence and did much to shape the city and its heritage for over three hundred years.

I hope you find the work of the History Group both interesting and informative.

Eric Bulmer
Chairman of the History Group

Acknowledgements

With grateful thanks to the members of the History Group and in particular, to Rosemary Zakzewski and David Parkinson for their major contribution in researching the Joiners' Guild.

The creation and production of this booklet could not have been achieved without the support of Liz Bregazzi, County Records Office, Chris Caple and Gemma Lewis of the Archaeology Department, Durham University, Francis Gotto from the Palace Green Library, Roger Norris former Chairman of the Trustees of the Durham City Freemen and Gary Bankhead, for his guidance and access to artefacts he discovered and recovered from the bed of the River Wear beneath Elvet Bridge.

Finally, special thanks must go to Geoff Kitson the official photographer of the Freemen for providing images and John Booth, the Warden of the Butchers' Company and Freemen website manager, who assembled the research material for the production of this booklet.

Introduction

The guilds or companies of Durham City stretch back over five hundred years and this year marks the special anniversary of the Butchers Company that was recognised with its right to trade in 1520.

There were historically three main types of guilds in the Middle Ages, merchant guilds, craft guilds and religious guilds, but only the craft guilds have survived. In medieval times groups of skilled craftsmen in the same trade formed themselves into guilds. A guild would ensure anything made by its members was up to standard and sold at a fair price.

The first Charter (granted to the citizens in 1179 by Bishop Hugh Pudsey) granting the citizens to be 'free from' in-tolls and out-tolls for their merchandise, hence the term 'freemen'. The first recorded Charter granted to a guild was the Weavers and Websters in 1450 and by the late 15th century there were sixteen Guilds in Durham.

The two primary concerns for the guilds were with the trades, where they endeavoured to maintain standards of workmanship (now known as quality control) and keep a local monopoly of the trade for their own members, by control of the admission of apprentices.

JOINERS' GUILD

An apprentice to a guild was trained by a guild member, who would expect to be paid for this by the boy's parents. An apprentice could live with his master for up to fourteen years, but seven years was more common. The ultimate certification as a 'master of their craft' was the production of a 'masterpiece' at the end of his apprenticeship. Once an apprenticeship was over, the young person became a 'journeyman'. A journeyman continued to learn his craft but from different masters and was now paid.

All charters stipulated certain rules known as 'Ordinaries'. Common to all guilds was that, '*they must take part in the celebration of the Feast of Corpus Christi*' (1st Thursday after Trinity Sunday). The guilds, with their banners displayed, went in procession from the Market Place to Palace Green, where they enacted religious plays.

Another Ordinary stated that, '*no guild would permit a Scotsman to be an apprentice*', no doubt a reaction to the continuing conflict with our northern neighbour. This rule no longer applies.

Original 16 Guilds

The object of Guilds was to maintain high standards of workmanship through apprenticeships, and to engender good fellowship in society and religion. The following sixteen Guilds were established in Durham:

Weavers & Websters (1450)
Cordwainers (1458)
Barber Surgeons, Waxmakers, Ropers and Stringers (1468)
Skinners and Glovers (1507)
Butchers (1520)
Goldsmiths, Plumbers, Pewterers, Potters, Painters, Glaziers and Tin Plate Workers (1532)
Barkers and Tanners (1547)
Drapers and Tailors (1549)
Merchants incorporating Grocers (1345), Mercers (1393), Salters (1394), Ironmongers (1464) and Haberdashers (1467) (1561)
Fullers and Feltmakers (1565)
Curriers and Tallow Chandlers (1570)
Free Masons, Rough Masons, Wallers, Slaters, Paviours, Plasterers and Bricklayers (1594)
Blacksmiths, Lorimers, Locksmiths, Cutlers, Bladesmiths and Girdlers (1610)
Saddlers and Upholsterers (1659)
Carpenters, Joiners, Wheelwrights, Sawyers and Coopers (1661)
Dyers and Listers (1667)

Of these only the Barbers, Butchers, Cordwainers, Curriers, Drapers, Joiners, Masons and Plumbers survive.

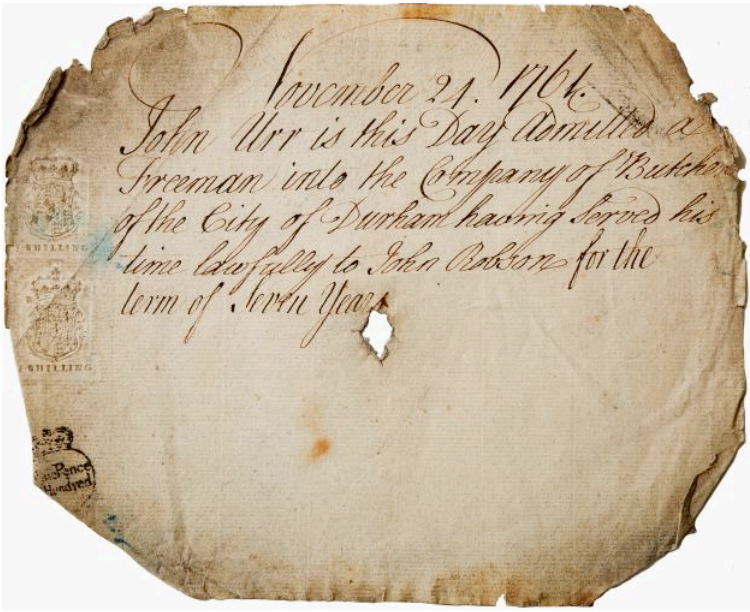
Early Admission as a Freeman

Initially, freedom (to become a Freeman) could only be obtained in two ways either by Servitude or Patrimony.

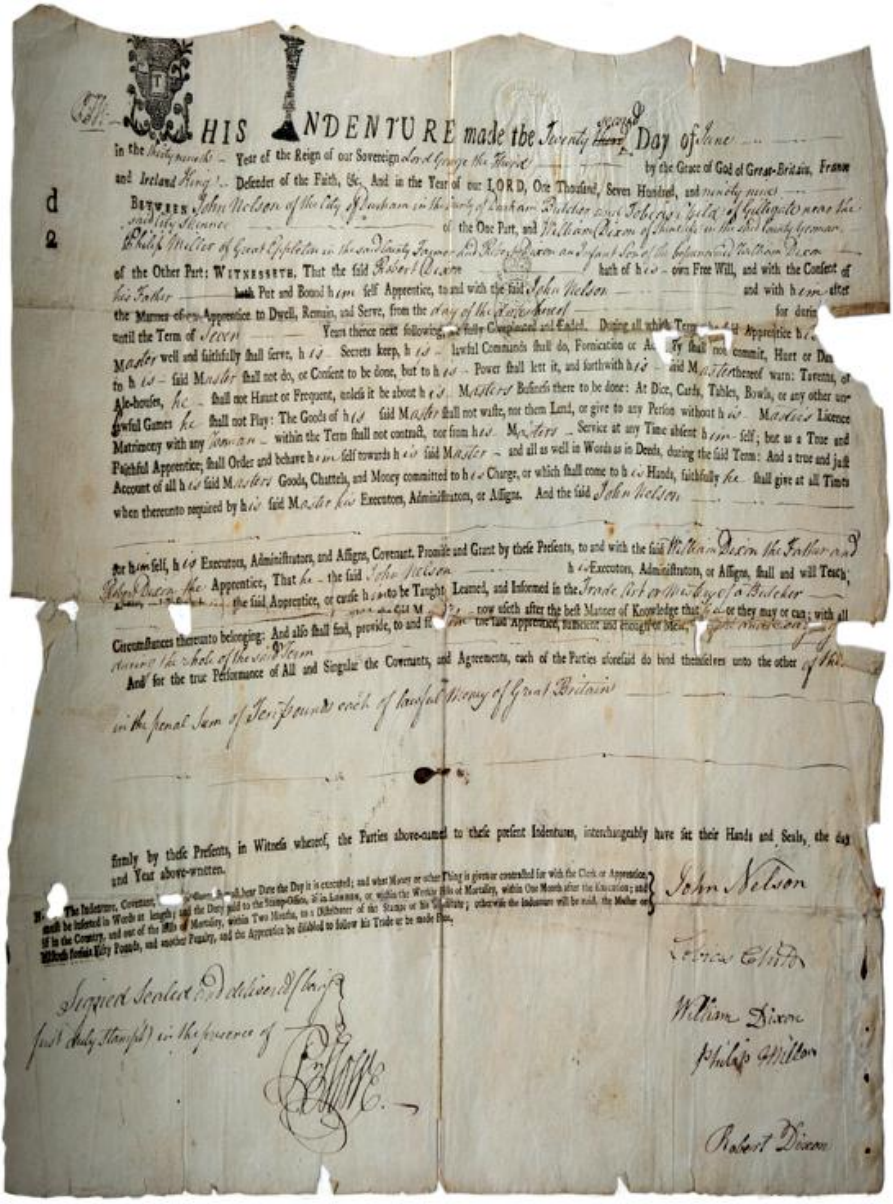
Servitude

Serving a seven year apprenticeship (now only three years).

This was usually confirmed in a deed (written contract) by which an apprentice was bound by indenture to a master. Once he had completed his apprenticeship he was admitted to the Company/Guild of his craft.


November 24. 1761.
John Urr is this Day Admitted a
Freeman into the Company of Butchers
of the City of Durham having Served his
time Lately Sold to John Robson for the
term of Seven Years.

Document dated November 24th 1761 confirming John Urr's admittion as a Freeman into the Company of Butcher's after serving a seven year apprenticeship to John Robinson.



HIS INDENTURE made the Twenty Day of June

in the Year of the Reign of our Sovereign Lord George the Third by the Grace of God of Great-Britain, France and Ireland King, Defender of the Faith, &c. And in the Year of our LORD, One Thousand, Seven Hundred, and ninety nine

BETWEEN John Nelson of the City of Durham in the County of Durham Butcher and Tobacco Pipe of Gilligate near the said City Skinner of the One Part, and William Dixon of Shincliffe in the said County Yeoman, Philip Miller of Great Appleton in the said County Joyner and Robert Dixon an Infant Son of the before named William Dixon of the Other Part: WITNESSETH. That the said Robert Dixon hath of his own Free Will, and with the Consent of his Father he the said William Dixon testified by his Signing and Sealing hereof, and also by the Ratification of the said Philip Miller, put and Bound himself Apprentice, to and with the said John Nelson and with him after the Manner of an Apprentice to Dwell, Remain, and Serve, from the day of the Date hereof for during and until the Term of Seven Years thence next following, to be fully Compleated and Ended. During all which Term he the said Apprentice his Master well and faithfully shall serve, his Secrets keep, his lawful Commands shall do, Fornication or Adultery shall not commit, Hurt or Damage to his said Master shall not do, or Consent to be done, but to his Power shall let it, and forthwith his said Master thereof warn: Taverns, or Ale-houses, he shall not Haunt or Frequent, unless it be about his Masters Business there to be done: At Dice, Cards, Tables, Bowls, or any other unlawful Games he shall not Play: The Goods of his said Master shall not waste, nor them Lend, or give to any Person without his Masters Licence Matrimony with any Woman within the Term shall not contract, nor from his Masters Service at any Time absent himself; but as a True and Faithful Apprentice, shall Order and behave himself towards his said Master and all as well in Words as in Deeds, during the said Term: And a true and just Account of all his said Masters Goods, Chattels, and Money committed to his Charge, or which shall come to his Hands, faithfully he shall give at all Times when thereunto required by his said Master his Executors, Administrators, or Assigns. And the said John Nelson for himself, his Executors, Administrators, and Assigns, Covenant, Promise and Grant by these Presents, to and with the said William Dixon the Father and Robert Dixon the Apprentice, That he the said John Nelson his Executors, Administrators, or Assigns, shall and will Teach, the said Apprentice, or cause him to be Taught, Learned, and Informed in the Trade Art or Mystery of a Butcher now useth after the best Manner of Knowledge that he can or they may or can; with all Circumstances thereunto belonging. And also shall find, provide, to and for the said Apprentice, Victuals and Drink for Meat during the whole of the said Term And for the true Performance of All and Singular the Covenants, and Agreements, each of the Parties aforesaid do bind themselves unto the other of this in the penal Sum of Ten Pounds each of lawful Money of Great Britain

firmly by these Presents, in Witness whereof, the Parties above-named to these present Indentures, interchangeably have set their Hands and Seals, the day and Year above-written.

The Indenture, Covenant, or Deed Poll, whereby Date the Day it is executed; and what Money or other Thing is given or contrafted for with the Clerk or Apprentice, shall be inserted in Words at length; and the Duty paid to the Stamp-Office, if in London, or within the Weekly Bills of Mortality, within One Month after the Execution; and if in the Country, and out of the Bills of Mortality, within Two Months, in a Disbenture of the Stamps or his Substitute; otherwise the Indenture will be void. The Mother may Witness Seven Fifty Pounds, and another Penalty, and the Apprentice be disabled to follow his Trade or be made Free.

John Nelson

Robert Dixon

Robert Dixon Indenture 20th June 1799
Indentured Apprentice to John Nelson (Butcher of Gilesgate near Durham for seven years.)

Patrimony

Conferred on the eldest son of a Freeman (today all sons and since 2010, daughters can also be admitted).

Customary Freedom

Occasionally individuals (who do not qualify as above) are invited to become Freemen whose influence on behalf of the guilds is worth having.

During medieval times and until 1835, the Freemen had authority and power. They were the only citizens that could vote for or be elected as Mayor. Great Reform Act (1832) and the Municipal Corporation Act (1835) extended electoral franchise, removing the power of the Freemen overnight.

Although stripped of their authority, the Freemen have retained three historical privileges;

- To erect a stall in the marketplace free of charge.
- To graze their livestock on the Sands.
- The use of the Guildhall free of charge.

The functions of the Freemen and guilds today are largely ceremonial, notwithstanding their continuing support for the community and charitable causes.

Guild - Company Arms

Evidence of the history and heritage of the guilds can be found in the Durham Town Hall. In the Guildhall, (the historical home of the Guilds and Freemen) is housed a collection of silverware and 18th century watercolour interpretations of crests of a number of Guilds.

The Coat of Arms of Carpenters, Joiners, Coopers, Wheelwrights and Sawyers 1783 as displayed in the Guild Hall

In the Main Hall high in the roofs hammer head beams are the painted coats of arms of the sixteen original guilds.

Arms of the Joiners' Company

Displayed in the Town Hall roof

The Joiners' Guild

In early times Joiners formed part of the Company of Carpenters and Joiners, Wheelwrights, Sawyers and Coopers. The Joiners' crest is on the left side of the shield, a series of chevrons. It is thought that Bishop Tunstall in the 16th century approved the original charter, but no documents survive from before the appearance in 1712 of an Apprentice Book.

Carpenters made and installed building materials including roofs, floors and house frames, while Joiners constructed furniture and house and shop fittings, such as stairs, doors and window frames. Wheelwrights, Sawyers and Coopers made goods not directly connected to house-building. Cabinet-makers, who made delicate, intricate furniture, were absorbed into the Company in the 19th century.

The Apprentice Book included the Guild Ordinaries (rules) dating back to 1661. In 1712 every member had to obey twenty five rules, or pay a fine even for the slightest infringement. Most dealt with behaviour at meetings, admission to the Company and apprenticeships.

These include:

- Sitting in the wrong place.
- Speaking out of turn – fine of 6d to the bishop (later the mayor) and 6d to the guild warden;
- Absence – fine 3s; for the stewards, not carrying the box containing the Deed of Covenant from their house to the warden's house before the meeting – fine 3s 4d.

Apprenticeship and the Tools work and skills of a Joiner

The system was first developed in the late middle ages as a means of training boys in crafts to enable them to become independent in later life. A master craftsman was entitled to employ apprentices, quite often family members, as an inexpensive source of labour.

The Training of Joiner Apprentices

His development would be structured from the knowledge of the raw materials, the processes of splitting and drying, and the composition and grain structure of different woods. His training would progress to the use of hand tools, measuring devices and other equipment needed to shape and join pieces of wood together. He would progress to understand the strength and weakness of the different wood joints and their application.

Only married master craftsmen could take on apprentices, and so could provide accommodation, food and clothing. The master-apprentice contract required an indenture. A second apprentice could only be taken on if the first had completed six years of his apprenticeship, unless the former was the master's son. A lazy or badly behaved apprentice was taken to the mayor by the guild's wardens and his master was fined. An apprentice had to be 24 years old for it to be declared he had "*served his years*"; only then could he become a journeyman, and no master might permit his apprentice to marry until he had completed his seven years apparently apprentices would often marry their master's daughter.

Apprenticeships could last between seven-ten years. By the 1750s every fully trained apprentice was expected to "*take his*

freeledge within fourteen days (later twenty eight days) from the expiration of his apprenticeship, or to be fined every meeting after, and until his absences be paid he is not to be admitted".

Admission to the Company

An applicant must be known to the warden as an able workman, must produce his apprentice indentures proving the completion of his seven year apprenticeship: charge - £4 to the bishop, £4 to the trade and £2 for the "decayed brethren" (probably those who had become impoverished); payment of a freelidge (for the privilege of becoming a burgess of Durham City) of 5s for a Freeman's son, for the apprenticed stranger 10s to the trade and 3s 4d to the mayor.

Hand Tools

Hand tools have been developed over hundreds of years from stone, bronze, iron and gradually on to the high grade carbon steels we use today. The apprentice would understand the 6 main functions which require hand tools to produce something from wood:
1. Chopping & Splitting - Axes, hammer, auger, hatchet adze, wedges and saws. 2. Boring Holes - Auger, Brace & Bits, Bradawls and Gimlets. 3. Sawing - Ripping, Half Ripping, Panel, Tenor, Sash , Compass and Keyhole. 4. Hammering - Wooden Mallets, Chisels, Hammers. 5. Measuring - Dividers, Bevels, Chalk String, Rulers. 6. Shaping & Finishing - Planes , Fore, Smoothing, Rabbit, Jack, Long, Jointer, Files and Rasps. Edged tools would be sharpened by;- Grindstones, Rub Stones, Oil and Whet stones.

Early 19th Century Toolbox

CONTENTS:- *Hammer, Mallet, Rule, Gimlet, Augers, Hand saw, Hatchet, Smoothing plane, Fore plane, Dividers, Chisels, Pincers, Files, Spoke shave, Whet Stone, Square, Bevel gauge, Marking Scribe and Canvas bag.*

Early 20th Century Toolbox

CONTENTS:- *Hammer, Mallet, Rule, Gimlet, Augers, Dividers, Chisels, Pincers, Files, Spoke shave, Whet Stone, Square ,Bevel gauge, Marking Hand saw, Hatchet, Smoothing plane, Fore plane, scribe and Canvas bag.*

JOINERS' GUILD

Many traditional joinery techniques would rely on close fitting dry joints, so training would involve identifying the eight main joints. In order to join two pieces of wood together (the definition of a Joiner) the apprentice would have to learn how to use the following popular, traditional forms of joint: 1. Butt, 2. Mitre, 3. Half Lap, 4. Mortice & Tenon, 5. Dovetail, 6. Dado, 7. Rabbet, 8. Tongue & Groove. Once proficient at using hand tools and mastering wood joints to a high standard, the apprentice would be a valuable asset to his employer.

Being an apprentice in the 1700-1800s would have been a worthwhile occupation and a possible career path to Master Craftsman and Guild status.

Apprenticeships are still a successful and an important means of training young people in trades and industry in general.

Peter Bennett - Durham Cathedral Apprentice Joiner

Sponsored by Durham City Freemen

The Company in the 18th and 19th Century

In the early 17th century the guild grew in wealth. In 1749 – 50 The Company spent £2.13.4d but received £3.3.0d. However, very soon debts became a problem, partly due to projects involving several companies, and in 1758 some silver plate was sold to pay for a law suit. The following year more silver was sold because of "*the expenses incurred over the Wear navigation scheme*" – an ambitious plan (which failed) to reroute the river and make navigation possible right up to Durham. In 1764 another law suit led to more silver being sold – a Mr John Bell (a Freeman) and a foreign journeyman had worked "*within the liberties of the city*". The identity of the foreigner is not clear, but the guilds did not allow Scots to be employed.

In contrast, in 1763 the Company paid £15.18.2d for a quart tankard, a pint can and a gill can, all engraved with the company's coat of arms. Subscriptions were asked for a new banner and by 1765, £6.15s had been raised. In 1785, 12s was spent on a company coat of arms "t*o be hung in the Common Hall of the Tolbooth*" and another 12s on its frame, glass and gilding. A new banner was needed in 1803, but the apprentices were not to touch it: possibly they had caused the accounts frequently to state "*to mending the banner*". The banner was completed in 1804 after spending 10s 6d on "*making up the banner and putting on the fringe*". Company meetings, originally held quarterly, were reduced to twice a year, but with two dinner occasions.

Every member (usually known as "*brother*") and his wife were obliged to attend the Michaelmas dinner (29th Sept), for a charge of 12d each for himself and his wife, unless he was out of County Durham or "*visited with the visitation of God*". Absence without due cause meant a fine of 3s 4d. At Corpus Christi (Thursday after Trinity Sunday) the warden laid on a dinner, which had to be paid for (6s 8d) by Midsummer's Day. By 1798 there were four Guild Days a year, but the accounts show that there were other meetings, when significant decisions were made.

By the end of the 17th century admission to the Company of Joiners was costly, unless you were the son of a Freeman, especially if you were absent for a time. Here is what John Gibson paid in 1796:

	£	s	d		£	s	d
Admittance		10		His threepence (regular meeting charge)		1	
Admission Duty		4	$0\frac{1}{2}$	For or not taking up his freedom in due time		10	
Towards the expense of the banner		2	6	For absences		12	
For the warden		2	6	For the stewards			2
For the clerk			2	To drinks for the whole Trade			5
Mayors Fees			8	Duty			4
Copt of his oath		10	6				
Total £3 13s $6\frac{1}{2}$d							

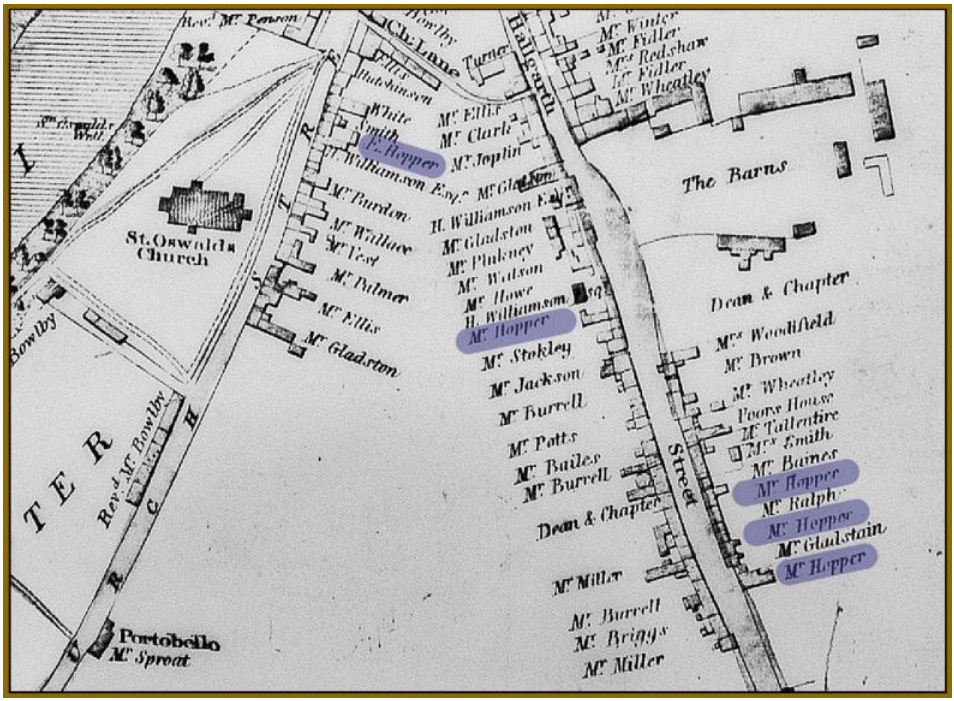
The 18th century Company records focused mainly on behaviour, fines, membership, financial concerns, company traditions, rituals and dinners, while those for the 19th century concentrated on business. The number of members increased fast in the first half of the century.

In 1828-40 brethren lived in or near Durham, with many more living not only over the North-East but also as far away as Cumberland, Leeds, Manchester, Staffordshire and even London and Kent. By 1842 there were eighty resident brethren.. However, with the increase of industrialisation from the 1850s numbers decreased drastically. The last apprentice was recorded in the 1880s and by the early 1900s one or two admittances a year were recorded. The history of the Company written in the 1930s (Whiting) includes no information about the 1920s or 1930s. There are still professional joiners in Durham in the 21st century, but they are not members of the Company of Joiners.

The Hopper Family

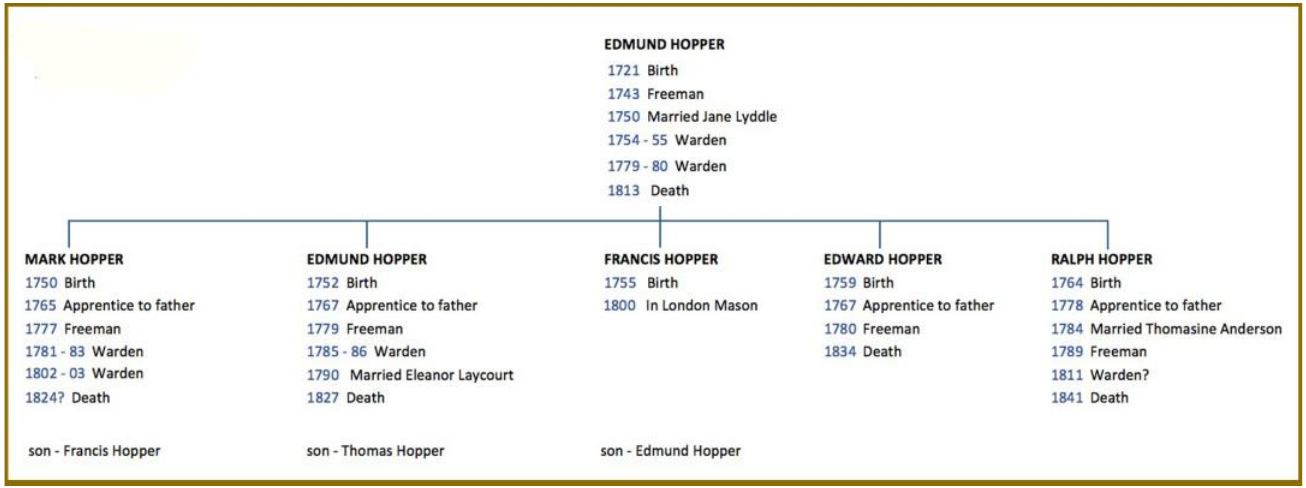
There were joiners aplenty in and around Durham in the 18th and 19th Centuries. They were spread around the city with a concentration in the area from Elvet Bridge eastwards and south-eastwards. Among them was the Hopper clan - so many of them, some with the same first name, listed among births, marriages and deaths, joiner apprentices, and guild membership, that it is difficult to distinguish one family from another. However, the records of our family's births, marriages and deaths listed in St Oswald's Parish record helped to identify and locate them. Two other documents, one in particular, solved the problem: Edward Hopper's will refers to each of his brothers and his sister by name, and the probate of Edmund Hopper, who was thus found to be his brother, not his father, written nearly ten years earlier, also gives the appropriate locality, so a jigsaw puzzle has been nearly completed, though we can never be absolutely sure of all the facts.

Our story starts in 1721, when Edmund senior was born and baptised in St Oswald's church. He had five sons and a daughter. He died in 1813 at the age of 92, in Hallgarth Street. According to the Dean and Chapter records, in 1779 a certain Edmund Hopper, four of whose sons were either apprenticed to him or were already fully qualified joiners, became tenant of a property in Hallgarth Street, which was finally sold (we think to the same family) in 1806. The property had a large yard and garden, useful for a joiner. The site no longer exists, but was probably just south of The Barns on the map of Hallgarth Street.



The Hoppers' residences in Hallgarth Street

Hopper Family Tree from 1721 - 1842



The family tree shows the five sons. Mark, Edmund junior, Edward and Ralph were all apprenticed to their father, and became Freemen.

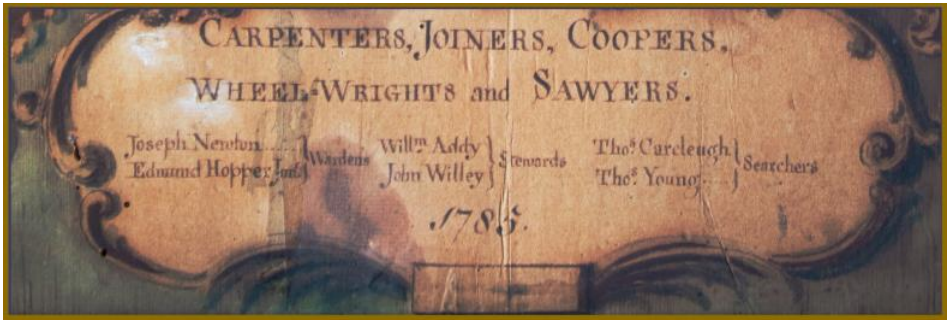


Image from the Joiner's Crest in the Guild Hall

Two, or possibly three of them, like their father, whose name is on the Guild crest, became wardens of the Company of Joiners.

Edward does not appear to have become a warden, but he became a landlord, owning three cottages in the village of Pittington, just outside Durham. His will makes clear he was well off, because, although he seems to have had no children, he gave sums of money – and sometimes more - to all his relatives. One brother, Francis, had a very different life story: he became a stone mason, and lived and worked in London. All the dates of births, marriages and deaths are in the records of the parish of St Oswald.

Three of Edmund senior's grandsons are mentioned in Edward's will, but their lives remain unknown. What we do know is that at the end of the 18th century there were at least five Hopper joinery tool boxes in Durham, all from the same family. It was clearly a healthy family, as all appear to have lived to ripe old age. Thus our tale ends over a century after the birth of Edmund senior, who provided Durham with many joiners, all trained by him.

The Rise and Fall of the Guild in the 19th Century

In the 18th century the company records, which can be studied in Palace Green Library, focussed mainly on behaviour, fines, membership, financial concerns, company traditions, rituals and dinners, whereas those for the 19th century concentrated on business. At this time the guild was usually named the Company of Carpenters, Joiners etc – or even "and so forth", but in the early 1800s the title was usually the Company of Joiners and Carpenters, suggesting the joiners dominated the guild. This was also the period when Hoppers, who were all joiners, were frequently the Wardens of the Guild: between 1779 and 1831 there were 15 Wardens named Hopper, though not all were from the family just described.

During the first half of the century the number of guild members increased fast. In 1828 forty brethren lived in or near Durham, with many more living not only across the North-East, but also as far away as Cumberland, Leeds, Manchester, Staffordshire and even London and Kent. By 1842 there were 80 resident brethren, but by then the Hoppers had mostly disappeared, although there was a George Hopper, joiner, who lived in Old Elvet in the 1840s.

Annual Durham Directories were printed from the 1840s onwards, and the joiners were listed as working tradesmen, as were the cabinet makers. Some of the same joiners also figured on the list of builders, but there was no list of carpenters.

This continued until the 1860s, but then the Joiners gradually faded out as an independent list, and towards the end of the century there was only one list named Builders, Joiners etc.

The guild structure changed in the 1850s – no more changes of Warden every year, as the membership declined drastically, probably as a result of industrialisation. The last apprentice was recorded in the 1880s, and by the early 1900s only one or two admittances were recorded. In 1855 Edward Hopper, joiner, came to live in Hallgarth Street, and from 1857 to 1897 he remained Warden of the Company of Joiners. No other craftsmen were included in the title, which was sometimes recorded as the Joiners' Company. This is not so surprising when the finances are studied, which indicate clearly how the guild shrank. In the 1769 accounts, about the time when silver tankards were bought, and banners made, the balance was £9.15s 5d, but by 1889 there was only 13s 2d and by 1912 the accounts show that the balance was down to 1s 10d. Then came the First World War.

The history of the company written in the 1930s (Whiting) includes no information about the 1920s or 1930s. There are professional joiners in Durham in the 21st century, who are not members of the Company of Joiners. Time-served tradesmen within Durham in the field of carpentry and joinery are entitled to apply to become a Freeman of Durham City. There are currently 40 Freemen in the Joiners Company.

Appendix 1

Artifacts recovered from the River Wear

Hand wood-working chisel Artefact No: 1862

Dimensions: Consists of the part blade, shank, shoulder and tang with an overall length of 9.5cms, the tang 4.5cms from the shoulder.

History: Woodworking chisels are one of the five types of tool dating back to the stone-age, developing from stone, flint, copper, bronze, iron and through to the present day steel tool. Chisels come in many forms and are defined as hand tools. They are designed to be driven by mallet/hammer or by hand for paring, scraping, cutting and chopping to make changes and shapes from wood.

Description and condition: Artefact 1862 is a part section of a bevelled-edge chisel, so called as the edges have been ground away to allow maximum access into acute angles as in making dovetail joints. The cross section of the chisel blade is trapezoidal. The remaining blade section, which is 2cms wide,

has broken off 1cm from the shoulder and has not been re-sharpened. The tang shows no evidence of a wooden handle. The metal wood chisel has the same level of oxidisation over its total length, indicating equal metal composition. The higher the carbon content of steel, the better the chisel could be sharpened and hold its edge, the disadvantage being the metal becomes brittle and easily fractured, as in this example.

Conclusion: The chances of the chisel being damaged during normal safe working practices are unlikely.

Appendix 2

Metal Dividers: Artefact Number:- 2013

Dimensions: Overall length: 130mm, width at fulcrum: 18mm, width between points: 70mm.

History: Dividers predate Roman times and have been used over the years on any operation requiring accurate measurements. They were essential as navigational aids, used to transcribe distances from nautical charts or to compare distances taken from a known standard and measured. It was also a metal measuring instrument used by joiners, carpenters, blacksmiths, armourers and anyone wanting to draw an arc or circle on a hard surface. In the 18th century, when a pen or pencil was added to one leg, it became a compass.

Description:

This river find is completely covered with iron oxide making a metal analysis (ED-XRF) unreliable as to its metal constitution. It consists of two legs, joined together at a fulcrum with the two legs sharpened to a point at the opposite end. The legs are seized by corrosion at a angle of 30 degrees making it non-operational. Such callipers are normally made from forged steel and consist of 5 separate pieces: 1. Right and left handed legs 2.Two washers. 3. Approx 1/4" diameter metal pin.

How it was made:

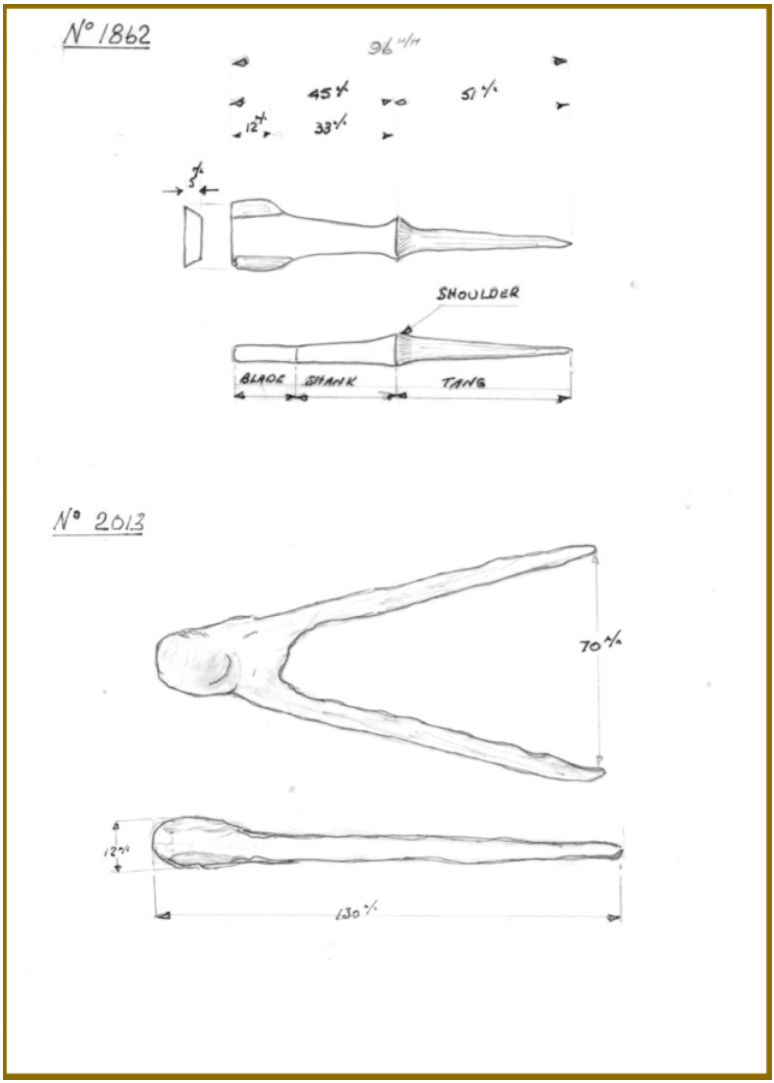
Made from a flat iron bar, the legs were cut to size and heated in a forge by a blacksmith. They were removed at the correct temperature and roughly beaten into shape on the anvil. The legs were formed to interlock at the fulcrum end, shaped so that when in the closed position the legs would be parallel. A hole was punched into the fulcrum end of both legs and into the two iron washers. The pieces were placed together with the washers at either side of the fitted legs and the pin passed through, protruding at either side.

The assembly would then be riveted together at the fulcrum end and filed to a smooth finish.

The points would be case hardened to reduce the necessity of re-sharpening. A hole was punched into the fulcrum end of both legs and into the two iron washers. The pieces were placed together with the washers at either side of the fitted legs and the pin passed through, protruding at either side. The assembly would then be riveted together at the fulcrum end and filed to a smooth finish. The points would be case hardened to reduce the necessity of re-sharpening.

Appendix 3

Hand-Drawn Sketch of Artefacts Recovered from the River.



Further Reading

Whiting, C.E.: Durham Trade Gilds: in Transactions of the Architectural and Archaeological Society of Durham and Northumberland, Vol IX, pp 187 - 203

Training of joiner apprentices: Carpentry and Joinery, by City and Guilds, chap.5 Woodworking Joints

Woodworking tools: Project Gutenberg E-book Woodworking Tools, A Brief History of Tools,1600 – 1900 by Peter C .Walsh

Use of Tools: DONATE (HTTP://DON8TO/HCTF001)

Early 19th Century Gentleman's Tool Chest: Project Gutenberg E-book of Woodworking; Fig 49, Book 87, by Cutler and Company, Castle Hill Works, Sheffield, courtesy of the Victoria and Albert Museum

Probate of Edward Hopper, dated 15/1/1835, located in Palace Green Library, number DPR/1/1/1835/H29/1-2

Will of Edward Hopper (registered copy), located in Palace Green Library, DPR/1/2/46 pp 13-14

Dates of births, baptisms, marriages, deaths and places of residence: County Durham Record Office - Parish Registers, Durham City: St Oswald's Parish and County Durham 19th Century Census Records

Dates of apprenticeship: Palace Green Library, DCG 9/1 folios

13, 14, 16 & 17

Dates of admittance to the see of Guild of Joiners: Palace Green Library, DCG 9/3 folios 11, 12, 13 & 17

Dates of Wardenship: Palace Green Library, DCG/2 folios 113,140, 143 &163

Sketch of plot on Hallgarth Street: Woodifield Survey: volume 1, pp 29 – 30: located in 5 The College, part of Palace Green Library, Durham

Map of Hallgarth Street: Plan of the City of Durham, surveyed by John Wood 1820: located in Clayport Library, Durham

Chisel Details: Project Gutenberg E-book Handwork in Wood by William Noyes.