

The Workshops of the Cutlery Industry in Hallamshire 1750-1900

Volume 1

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Summary

The cutlery industry of Hallamshire, of which Sheffield was the natural centre, was established over 700 years ago. The cutlery industry was based on a multitude of small scale firms situated within Sheffield and the surrounding rural areas with a large number of water-powered sites used for grinding. The arrival of steam at the beginning of the nineteenth century allowed for the development of a few large integrated sites creating much needed accommodation for the growing industry. The workshop buildings have few distinguishing characteristics suggesting that they were not purpose built but could be used by a range of industries. Most of the money for erecting them came from speculators, although established businesses occasionally invested in purpose built property. Builders followed vernacular designs with only larger firms using architects to create frontages which conveyed signs of status. However structures housing individual branches of the trade can be identified from windows, floor construction and internal evidence of the processes carried out. Evidence for power sources comes largely from documentary sources but steam power did not have the same impact as in the textile industry and only with the arrival of gas and electricity at the end of the nineteenth century was power widely adopted by the small scale firms.

Potential does exist for the reuse of many of the surviving buildings as offices, studios and domestic space; however the majority of the small scale workshops have disappeared and only the large atypical sites survive. This research has highlighted that the Sheffield trades, like many industries of the period, experienced continuity rather than change, thus demonstrating that the Industrial Revolution was a 'process' rather than an 'event'.

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Figure Acknowledgements

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All Paintings are held at Kelham Island Museum.

Introduction

This thesis is not a study of how cutlery is made, nor is it a detailed history of the firms which produced it. It is not a collection of memories or a specific history of the industry although references to all of these appear in its text. This thesis is about the buildings of the industry and what they reveal about the manufacture of cutlery and organization of the industry between 1750 and 1900. The aim at the outset was to provide archaeologists with a means of identifying redundant workshops in the future, and it has necessarily expanded to include the context in which these workshops were built. It assesses ways of recording the remaining buildings and what can be done to preserve them for future generations. It contains research which should have been carried out 30 years ago. The fact that it is being carried out now at the end of the twentieth century reflects the growing interest in the preservation of industrial monuments; the recent recognition of industrial archaeology as an accepted academic discipline;¹ and an increasing awareness by the academic profession that the Industrial Revolution was not dominated by the factory, the introduction of machinery and the abolition of hand power.

The Rationale and Organisation of the Thesis.

Industrial archaeology has an interdisciplinary character.² In his description of industry archaeology Michael Rix, the creator of the term, described the subject as a discipline that was 'acceptable to the economic historian, the architectural enthusiast, the human geographer, the local history group...the folk life expert.'³ He could also have added engineer and technological historian. This thesis therefore encompasses all of these disciplines in looking at the location of the cutlery industry in its geographical and economic context, the financing of the building of the workshops, the builders and architects who designed them as well as the archaeological aspect of interpreting the remains which are left behind. 'Structures have the capacity to shed light on a range of research topics such as cultural change, social values and organization, settlement mechanics, technological systems and the

¹ If this was not the case, no funding would have been forthcoming.

² Buchanan, R.A. 1972 Industrial Archaeology in Britain Penguin Harmondsworth p13

³ Rix, M. 1967 Industrial Archaeology The Historical Association London p19

attitudes of designers, owners, builders and occupants.’⁴ D. Smith was right when he defined industrial archaeology as ultimately being ‘concerned with people rather than things; factories, workshops, houses and machines are of interest only as products of human ingenuity, enterprise, compassion or greed - as physical expressions of human behaviour.’⁵ However for the last 30 years industrial archaeology has been locked into a ‘technocentric paradigm’⁶ that ignored the wider cultural meaning of the buildings which survive. As Alfrey and Putman wrote ‘Industrial archaeology has tended to neglect one of the primary tenets of traditional archaeology which takes a society and its people as its proper object of study; industrial archaeology has developed procedures for the investigation and analysis of technical monuments and machinery, but has little to say about the experience and organisation of working life.’⁷

In Sheffield the cutlery industry was at the centre of most peoples’ lives. Even by the end of the seventeenth century over a third of young males married at the parish church were employed in the industry on their wedding day.⁸ Grayson suggests that prior to Sheffield’s incorporation in 1843, the town was effectively governed by the Cutlers’ Company. ‘It was the Cutlers’ Hall, not the Town Hall, that continued to be the focal point of city life throughout the century.’⁹ In 1832 the Master Cutler, laying the foundation stone for the new hall, declared that ‘this Hall is intended not only for the Company but for the general purposes of the town.’ What was the significance of building the Cutlers’ Hall opposite the Parish Church? Gould has suggested that that by positioning of the church in relation to the mill at Saltaire, Salt was exercising an ideological control over his workforce.¹⁰ On leaving the mill, workers would be confronted by the church and on leaving the church the mill. Did

⁴ Davis, M. 1989 *The archaeology of standing structures* The Australian Journal of Historical Archaeology Vol 5 p54

⁵ quoted in Rix, M. 1967 op cit. p20

⁶ Gould, S. 1995 *Industrial Archaeology and the Neglect of Humanity* Managing the Industrial Heritage edited by Palmer, M. and Neaverson, P. Leicester Archaeology Monographs 2, University of Leicester p 50

⁷ Alfrey, J. and Putman, T. 1992 The Industrial Heritage- Managing Resources and uses Routledge London p7

⁸ Passmore, R.S. 1975 The mid Victorian Urban Mosaic- Studies in Functional Differentiation and Community Development in three Urban Areas Unpublished PhD thesis University of Sheffield Volume 1 p 43.

⁹ Grayson, R. 1994 More Myth than Reality: The independent artisan in nineteenth century Sheffield unpublished paper p5

¹⁰ *ibid* p52

the enlargement of the Cutlers' Hall in the nineteenth century emphasise the role of the company¹¹ in the lives of the 'little mesters' who would have made up a large proportion of the church's 'flock'?¹² Similarly, to what extent were messages conveyed by the frontages of the few integrated works within the town compared with the tenement factories and courtyard workshops? These questions will be addressed in chapter three.

It has therefore been recognised that a study of the cutlery workshops of Sheffield had to contain more than a typological description of the buildings giving basic dating parameters and guidelines which would offer 'little potential for meaningful generalisations.'¹³ To give the buildings a context, the landscape in which they were situated had to be assessed. How did the cutlery industry interact with other trades within the region? In addition the people connected with the trades had to be analysed. Who had the money to invest and where did it come from? Who was building the workshops and why? Chapters one to three examine these questions. By asking the question 'Why?' it is possible to get beyond 'the mere appearance of things, and on to a level of analysis that seeks in some way to understand the pattern of events.'¹⁴ This is especially the case when examining the introduction of power sources to the industry and the slow uptake of mechanisation within the industry assessed in chapter six.

Industrial archaeology has the advantage over traditional branches of archaeology in the fact that it has documents and, in some cases, oral evidence to testify to working practices and conditions of the last century. However where documents do not exist archaeology can be used to identify how the buildings were originally intended to function, i.e. whether they were integrated or tenement factories. More importantly, in the case of this thesis, industrial archaeology can be used to identify the principal characteristics of the industry allowing them to be recognised locally and thus helping to inform

¹¹ The "little mesters," who had formed the Company, were no longer the dominant members. These in the 19th century were the industrialists and steel manufactures of the town. For further discussion on the influence of religion in the Cutlers Company see Binfield, C. Forthcoming in Mester to Masters: A History of the Company of Cutlers in Hallamshire (April 1997)

¹² Cutlers' Company n.d. The Company of Cutlers in Hallamshire in the County of York

¹³ Johnson, M. 1993 Housing Culture UCL Press, London p 8

¹⁴ Renfrew, C. and Bahn, P. 1991 Archaeology- Theories, Methods and Practice Thames and Hudson, London p405

planning decisions in the future. 'Characterisation of urban industrial buildings, sites and landscapes provides a framework for planning policy, development control and investment.'¹⁵ The characteristics of the workshops will be discussed in chapters four and five. The issues surrounding the protection of the remaining structures connected with the industry are identified in chapter seven. 'For much of the twentieth century, public reaction to the relics of industrialisation was an adverse one: they were seen as symbols of sweated labour and unacceptable working practices, consequently being swept away in urban development schemes. Only in the last quarter of the twentieth century has the international significance of Britain's industrial heritage been realised and its value as a cultural resource appreciated.'¹⁶ It is this increasing awareness that has allowed this study to be made between 1993 and 1996. Today industrial archaeology as a subject is fully accepted by heritage bodies such as English Heritage and the Royal Commissions for Historic Monuments in England, Scotland and Wales.

Documentary Evidence for the Workshops of the Industry

The start date for this thesis, 1750, was chosen as it corresponds to the beginning of the Fairbank fieldbooks. The decision to stop in 1900 was dictated by the changes in the industry which began to take place at the beginning of the twentieth century. For example, the introduction of power sources to a wider range of workshops led to a decline in the demand for labour. Pollard writes: 'the decline in numbers, evident in some branches since 1873, became more pronounced in the years before the First World War.'¹⁷ There was also a change in the organisation of the industry. The role of the independent 'little mesters' declined, large firms buying them out and employing them to oversee departments within the factory. Pollard quotes the Fair Wages Committee report of 1908:

'A great many of these large firms are buying up the little masters, and instead of having these little masters, who perhaps employ a dozen or a score of men, and who supply some of these large houses, they buy a firm up, and appoint

¹⁵ Streeton, A. An extract from an abstract for a proposed paper entitled "Safeguarding the Past; Securing the Future: Planning and the Historic Environment of Industry," which was to be presented at a conference organised by the AIA December 1996 on the Problems of Identification and protection of Urban Industrial Sites. The conference has since been cancelled.

¹⁶ Palmer, M. and Neaverson, P. 1995 op cit. p ix

¹⁷ Pollard S 1959 History of Labour in Sheffield Liverpool University Press, p205

the little master as manager over a department, as rule, to make that class of knife, or other article which he has been used to manufacture for the firm.’¹⁸

With the introduction of electricity the industry changed, this thesis thus ends at this turning point.

The Fairbank Collection consists of a unique¹⁹ collection of surveyors papers which cover over a century. The first William (1688-1759), a Quaker school master turned part-time surveyor, drew up his first plans in 1739, but the series of most interest were the fieldbooks and building books largely completed by his son the second William (1730-1801).²⁰ His two grandsons, William (1771-1846) and Josiah (1778-1844), continued the business as W & J Fairbank until c1833 when the partnership was dissolved. The firm existed as Josiah Fairbank and Son (William Josiah Fairbank (1805-1848)) until the death of Josiah in 1844. The firm was wound up on the death of William four years later. In addition to the field and building books there are plans and finished maps, note books and miscellaneous books, which contain details, for example, of how to calculate the horse power of water wheels and the rate assessments in the early part of the nineteenth century. The correspondence papers, of which there are 7518, relate to estimates for building property, the work carried out on turnpike roads, railways and canals, and consultations about investments. The account books, on which little work has yet been done, bind the collection together and allow a picture to be built up of the building industry in the late eighteenth and early nineteenth centuries and the expenses incurred in the course of the work carried out by a surveyor's firm. The documents in this collection underpin much of the thesis, providing details about the cost of building workshops, who the builders were, the size of the workshops, the building materials used, and the use of power within them. Not all of the calculations in the field and building books add up, but for the purpose of this thesis have been left as they were on the basis that these were the figures quoted to clients at the time.

¹⁸ *ibid* p206

¹⁹ Work carried out by J. Unwin, funded by The Leverhulme Trust, on the Fairbank collection revealed that no other collection survives elsewhere in the country.

²⁰ Lamb, J.P. 1936 *A Guide to the Fairbank Collection of Maps, Plans and Surveyors Books and Correspondence* Sheffield City Libraries p5

The use of these documents would not have been possible without the on-going work of the Sheffield University Fairbank Group who have catalogued, on computer, all the titles of the field and building books. Joan Unwin has added details of the correspondence papers to the database which contains over 25000 references to the collection. Hopefully it will be available to the general public in the near future.

The ratebooks, of which Sheffield is fortunate in retaining almost a complete set for the nineteenth century, allowed a detailed assessment to be made of the location and size of the workshops used by the cutlery industry. The records relate to valuations of buildings on which a 'rate' was placed for the 'necessary relief of the poor and for other purposes in the several Acts of Parliament mentioned relating to the poor' levied on the buildings. 'To assess the rate Sheffield was split into townships which included Sheffield Upper and Lower, Ecclesall and Brightside where workshops once existed in large numbers. Samples of the first rate²¹ for each ten yearly period from 1820, the year in which descriptions of buildings become a feature of the records, to 1891 provided information not only on the location of the workshops but also the owner and occupier of the building. 'The property descriptions are often detailed and allow us to see the range of buildings and equipment...all of which add substantially to our knowledge of the industry.'²² By cross referencing the occupier and owners with the trade directories for the period their occupations were found and the use of any workshops mentioned clarified. But how accurate was this method?

In general all the directories used contain lists of names organised by street, trade and person, but not everybody appeared in all three. For the purpose of this research only the personal entries were used; to have consulted all three would have been impossible in the time available.²³ Names therefore may have been missed and thus the workshops will not appear as being in use by the industry in that year. Another problem is the accuracy of the directories

²¹ Depending on the amount of money required for poor relief the poor rate could be levied several times in one year.

²² Timmins, J. G. 1976 Commercial Development of the Sheffield Crucible Steel Industry MA University of Sheffield

²³ Especially as the date of the directory rarely coincided exactly with the rate book and therefore two directories were used, one on either side of the date in question.

themselves. Little is known of the methods used in Sheffield but from a national perspective Shaw and Alexander estimate that nineteenth-century directories list only 70% of the population in larger towns.²⁴ The nineteenth-century directories are however regarded as being 'comprehensive'²⁵ with less frequent omissions than their earlier counterparts regarding trading firms. They were usually constructed either by agents collecting information door to door or by sending out circulars.²⁶ Entries could also be paid for. To increase the chance of finding the owner and occupier named in the ratebooks, two or three directories were consulted, either side of the sample year. A check on the accuracy of this method was made for 1850. In total 1477 workshops were identified. Five hundred and fifty two were associated with the cutlery industry and 619 were unrelated. Only 20% remained undetected in the trade directories. It can therefore be assumed that the figures quoted in this thesis are an underestimate rather than an overestimate of the numbers of workshops associated with the industry during the course of the nineteenth century; the smaller workshops being the most likely to have been omitted. Other elements of confusion were in the terms used in the ratebooks. Often the term 'shop' was interchangeable with 'workshop'. 'Smithy' was another term that occasionally appears, although by the nineteenth century its use is less likely to refer to a workshop used by the cutlery trades than in the eighteenth century.²⁷ It was therefore decided to check all references to the terms workshop, smithy and shop.

Many other sources have been used during the course of this thesis but it is the Fairbank collection and the ratebook evidence which are the most important. By entering them onto a database the information was easily retrieved and cross referenced with other sources such as the building registers at the end of the nineteenth century and the banking records of the Sheffield Hallamshire and the Sheffield Union Banks. Ten percent could be traced as having building records, fourteen percent had banking records and

²⁴ Shaw, G. and Alexander, A. 1994 *Directories as Sources in Local History* **Local History Magazine** 46 Sept /Oct. p13

²⁵ *ibid.* p17

²⁶ Norton, J. 1984 **Guide to the National and Provincial Directories of England and Wales before 1856** English Historical Documents five p16-17

²⁷ There are many references in the Fairbank Collection that refer to Smithy or Smithies rather than workshops.

three percent had both. The information found in these sources will be discussed in the relevant chapters.

Contemporary illustrations have also revealed details of features that often do not remain today. In particular they were useful when establishing the types of engines in operation at the larger integrated and tenement works and the perception of the importance of the building by the owner when used in advertising features. The most useful set of illustrations appear in Pawson and Brailsford's *Illustrated Guide to Sheffield* but paintings stored at Kelham Island Industrial Museum, and others found in trade directories and catalogues, have also been used throughout this thesis.

Archaeological Evidence

Basic fieldwork involved photographing as many workshops as possible externally. More detailed fieldwork such as measured surveys at Stannington and detailed photographic studies of urban workshops were restricted by who would allow access and the time that they allowed on their premises. The urban surveys were often limited to an hour at the most. Another limiting factor was the availability of an assistant. Many industrial buildings are dangerous due to their dilapidated state and therefore it was inadvisable to visit them alone. This also limited the detail in which surveys could be carried out. Wherever possible black and white film was used but as a back up a compact camera loaded with colour film was utilised. To demonstrate some features such as brickwork and texture, colour film was regarded as a more suitable medium. All illustrations in this thesis have however been laser copied as it is likely that this form of presentation will form a more stable archive than the original colour prints. Where measured surveys were carried out, basic survey techniques were used, ie a tape measure. In summary, the majority of fieldwork carried out corresponded to levels one and two of the Royal Commission for Historic Monuments of England's (RCHME) guidelines for survey, ie basic photographic survey with notes.²⁸

The samples taken however, despite the limiting factors above, cover the full range of buildings used by the cutlery industry and give, in association with

²⁸ RCHME 1990 Recording Historic Buildings: A Descriptive Specification London p2

the documentary evidence, a detailed picture of the buildings associated with the industry and how they were organised.

Cutlery: What is It, How was the Industry Organised and How Were Goods Sold?

To understand the main body of this thesis it is necessary to have an understanding of what cutlery is, the geographical boundaries of the industry within Hallamshire and the complexity of the organization of the industry. This section defines the term 'cutlery' as used for this research and establishes the area covered. It also emphasises how the industry was organised and why and what happened to the goods once they had been made.

What is Cutlery?

The Central Statistical Office defines cutlery in the Standard Industrial Classification:

'90GM2- *Cutlery*. Establishments manufacturing table knives, pocket and sheath knives, pruning knives, razors, razor blades, scissors and manicure sets etc. Steel Table forms are included but silver and silver-plated forks are classified in Heading 102. Surgical Cutlery is classified in Heading 100.'²⁹

This however is not the full Sheffield definition of cutlery, given by the Cutlers' Company as 'any metal implement that has a cutting edge.'³⁰

In this thesis, cutlery manufacture has been defined as those trades which came under the jurisdiction of the Cutlers' Company, notably the makers of knives, scissors, razors and files. However tool production and the manufacture of other related goods such as flat and hollow ware will be brought into the discussion, especially where there are similarities and differences in the process of manufacture, or where buildings can show the same or different characteristics to those utilised by the cutlery trades.

²⁹ Townsend, H. 1954 *Economic Theory and the Cutlery Trades* ***Economica*** (August)

³⁰ **The Company of Cutlers in Hallamshire in the County of York**

What are the Geographical Boundaries of the Area Studied?

The Cutlers' Company was formed to govern production of cutlery in Hallamshire 'and six miles encompass therefrom'³¹ Hallamshire thus forms the geographical limit of this study (Map 1) corresponding roughly with the present city boundaries.³²

Due to the differential survival of workshops in the region fieldwork has been carried out mostly in the north and west of the area. In the south and east many of the workshops once connected with the trades have disappeared or have been converted beyond recognition, for example Scythe Works at Ford. However, the thesis mainly concentrates on the urban area covered by the detailed ratebooks of the nineteenth century. Workshops in rural areas were identified by local people.

The Organisation of the Industry

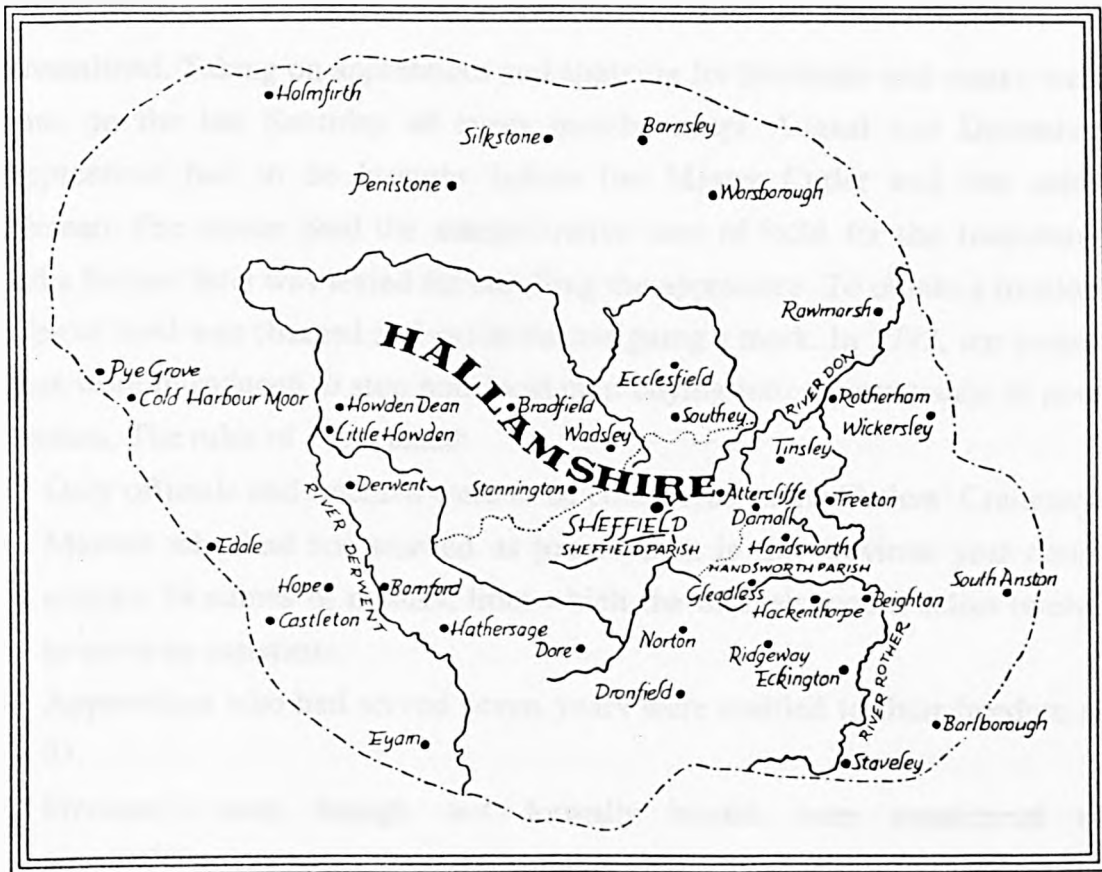
Cutlery was established in Sheffield at least 700 years ago.³³ The first ordinances governing the cutlery trades were issued in 1565 and overseen by the Manor Court. These stated that no work was to be carried out for fourteen days in August and a month from Christmas to the 23rd of January. No-one was allowed to train a boy if they had not served a seven year apprentice or been 'sufficient learned' by their fathers and no cutler was to haft³⁴ blades made outside Hallamshire. In 1590 ordinances were issued that extended the August lay-off to four weeks, limited a cutler to one apprentice unless another apprentice was in his final year, ensured that apprentices were taken before at least two members of the jury during his first year to sign his indentures and again at the end of his term. Masters were not allowed to set on any journeymen less than twenty years old and sufficiently trained, unless agreed by the jury, and no grinding wheel owner was to allow men from outside the lordship to grind or glaze blades. Cutlers could only strike their own mark. All fines for breaking the ordinances were spent on maintaining the poorer cutlers. Although these regulations were aimed at maintaining quality, the

³¹ *ibid.*

³² Smithurst, P. 1987 The Cutlery Industry Shire Aylesbury p5 (The current metropolitan limits)

³³ Sheffield celebrates 700 years since the first recorded cutler "Robert the Cutler" in tax returns of 1297 next year

³⁴ Attach a handle



Map 1: The Boundaries of the Cutlers' Company jurisdiction as defined in 1624.

account books of 1614 show that many of the rules were being broken.³⁵

In 1624 the Cutlers' Company in Hallamshire was formed by Act of Parliament to regulate the trades of knives, scissors, shears and sickles. The first regulations were similar to the Ordinances of 1590 but in addition all knife blades etc. had to have a steel edge. A year later powers for searching premises were added to the role of the company to look for 'deceitful wares' and in 1665 it was stated that all apprentices had to be kept under control. Any apprentice not living with his master or leaving him without permission, could never become a Freeman of the Company. Increasing specialisation of the trades was emphasised by the rule that no-one was to work in a branch of the trade for which they had not been trained, and the annual mark fee was set at 2d. In 1728 the minimum age of an apprentice was set at twelve years.

By the beginning of the period of this study the industry was therefore well organised. In 1750 the activities of the company were further enhanced and

³⁵ Notes from J. Unwin

streamlined. Taking on apprentices and applying for freedoms and marks were done on the last Saturday of every month except August and December. Apprentices had to be brought before the Master Cutler and one other freeman. The master paid the administrative cost of 9s2d for the Indentures and a further 2s6d was levied for enrolling the apprentice. To obtain a freedom a fee of 3s4d was charged and 4s10d for assigning a mark. In 1772, ten pound fines were introduced to stop non-local men buying into a partnership of poor freemen. The rules of 1791 stated:

- Only officials and freemen were to be considered as the Cutlers' Company.
- Masters who had not worked as journeymen in the previous year could suggest 24 names of masters, from which the officials would select twelve to serve as assistants.
- Apprentices who had served seven years were entitled to their freedom at 21.
- Freemen's sons, though not formally bound were considered as apprentices.
- Anyone who had been working in the trade, but had not served an apprenticeship, could apply for a freedom within three months and have a mark assigned for treble the fee.
- Every freeman must apply for a mark, annual fee 6d. Cutlers must have a mark before taking on apprentices.
- Cutlers might take as many apprentices as they like.
- No apprenticeship should be for less than seven years or until the boy is 21.
- Poor boys and Parish apprentices could be taken.
- Widows of freeman might carry on the trade.

All apprenticeships were abandoned in 1814 by the Cutlers' Company on the repeal of the Elizabethan Statue of Artificers.³⁶ This marked a turning point in the role of the Company which in the nineteenth century, for although it continued to promote the industry, it had less influence over organisation of the industry. However, the system of apprenticeships continued to be enforced by the trade unions. These were limited to a single craft, e.g. file

³⁶ Surrey-Dane, E. 1973 Peter Stubs and the Lancashire Hand Tool Industry J Sherrett and Son Altrincham p101 and Pollard, S. 1959 p66

cutters, table knife forgers, scissor grinders³⁷ and throughout the nineteenth century remained 'parochial and poorly administered'³⁸ having most force in times of prosperity and breaking up in times of depression. In the 1890s of the 40 societies examined by Pollard, '32 limited apprentices to members' sons only, and only two (table-blade forgers and file cutters) would permit an apprenticeship of less than seven years.'³⁹ The trade unions recognised that 'skilled labour was, in fact, by far the most important factor of production in Sheffield industries.'⁴⁰ But by the end of the century almost every rule laid down by the unions was being broken. The unions lacked power in Sheffield because of the independence of the 'little mester.' Lloyd writes, 'the little mesters have always been the bane of the manufacturers, but they have been even more fatal to the success of the labour unions.'⁴¹

Before the introduction of steam, working hours remained unregulated and the craftsmen were free to work when they liked. 'The firms for whom [they] worked had little or nothing to do with the methods of working, or the hours during which the work was done...these craftsmen, therefore, became very independent, working for whom they pleased, and taking time off when they wanted. Work rarely started before Tuesday, for there were many outdoor attractions on 'Saint Monday'.⁴² The introduction of steam power meant that work had to be carried out during the hours when the steam engine ran, but it was commented on by the Commission on Children's Employment in 1865 that 'the effect of this change, though to some extent the same as that arising from the substitution of factories in other seats of manufacture is less complete....thus, many of the advantages which might be thought likely to result from the supervision of a master over workers and their hours, and the state of their workplace &c are, unfortunately, often imperfectly realised.'⁴³ As chapter seven demonstrates, the use of power was more applicable to the grinders than any other division of the trades.

³⁷ Pollard, S. 1959 op cit. p136

³⁸ *ibid* p135

³⁹ *ibid* p135

⁴⁰ *ibid* p65

⁴¹ Lloyd, G.I.H. 1968 op cit. p196

⁴² Dyson, B.R. 1979 op cit. p4

⁴³ White, J.E. 1865 Report upon the Metal Manufacture of the Sheffield District: Appendix to the 4th report on Children's Employment (reprint IUP Vol 15) Intro/11

Unlike the development of the industry in Germany and America, the Sheffield trades in the 19th century did not expand along the lines of mass-production. The large buildings were the exception rather than the rule but even then the 'size of the building [did not] affect the structure of the industry they housed, which continued to encourage the existence of separate 'little mester' workshops with their own four walls.'⁴⁴ Townsend described the larger scale factories as 'aggregations of craftsmen's workshops, constructed in narrow wings to provide the maximum of window space...Their occupiers had semi-independent status, for they rented their hearths, troughs or sides⁴⁵, provided their own tools and were paid by the piece.'⁴⁶

Most cutlers were paid on a piece-work basis. Here the unions were fundamental in drawing up the Sheffield Price Lists on which all wages were based, subject to deductions for rent, heat and materials. However, once again it was only in boom years that wages based on the price lists were implemented. In times of depression many set up on their own. The question of where the money came from to finance these ventures is assessed in chapter two.

Lloyd noted that in the depression of 1840-42 'the trades were swarming with little mesters, there being more than 500 in the spring knife trade alone..... they could undersell the substantial firms because their fixed charges were insignificant and the labour was the cheapest in the market.'⁴⁷ These wide fluctuations in the number of firms may account for the variations in the numbers of workshops recorded in chapter one.

The flexibility of the organisation of the industry is indicated by reports to the Royal Commission investigating the Sheffield outrages of 1867. The following extract is a interview carried out by George Chance with Joe Gale:

⁴⁴ Grayson, R. with Hawley, K. 1995 Knifemaking in Sheffield and the Hawley Collection PAVIC, Sheffield p8

⁴⁵ troughs = grinding troughs. The grindstone, as shown in chapter six, was set in a trough made from stone, iron or concrete. Side = workbench, these were often rented out to individuals, thus making the spatial organization within the workshop difficult for the archaeologist to assess without the aid of documentary sources.

⁴⁶ Jones, G.P. and Townsend, H. 1953 *The rise and present prospects of the Sheffield cutlery industry* International Cutler vol. 3/1 (March) p18

⁴⁷ Lloyd, G.I.H. 1968 (reprint) The Cutlery Trades Cass, London p194-196. Unwin has also noted from her work on the penknife industry that the number of firms increased in times of depression. *Pers Comm Oct. 1993.*

2588. (Mr Chance) What are you? - A Scissor grinder.
 2589. How long have you been in the trade? - I was apprenticed in the year 1850.
 2590. When did you become a journeyman? - In 1858, nine years ago.
 2591. Are you a journeyman now? - No, a scissor grinder; as a rule we are master grinders, though you might term us journeymen. I am employed for a scissors manufacturer in the town.
 2592. You employ journeyman? - Sometimes.
 2593. And you also work yourself? - It is the rule in the town that scissors grinders are master grinders because they find their own tools and pay for power, and can leave at a moment's notice.
 2594. You sometimes employ journeymen and sometimes not? - Yes.
 2595. Then you work for yourself, and are at the same time an employer, and also a scissor grinder? - Yes and also a journeyman.⁴⁸

Grayson sums up the system thus: 'men might be employed by one or more masters simultaneously; that they might sub-contract work and simultaneously be sub-contracted themselves; that they might be a journeyman one day, 'little mester' the next.'⁴⁹ This complexity of social mobility is almost impossible to comprehend from the archaeological evidence, as is demonstrated in chapter five when examining spatial organisation.

Where was Sheffield Located in Relation to World Markets and How Were the Goods Produced in Sheffield Sold?

Described by Rudmose Brown as being on the 'natural route to nowhere'⁵⁰ it was remarkable that Sheffield had developed as a centre for industry at all. This did not mean that there were no routes of communication. Probably since the thirteenth century cutlers took their wares to annual fairs around the country or sold their goods to a 'middle-man' who would do the same. The 1797 trade directory commented that these fairs 'annually decreased in importance; because shopkeepers could easily be supplied with goods at any time of the year.'⁵¹ The 'middle-men' were known by the term 'factors', but could also be called "little mesters," a term reserved in this thesis for the craftsmen. Stuart Utterly, secretary to the Sheffield Federated Trades Council, decried the role of the factor to the Select committee on the Sweating System in 1889:

⁴⁸ Quoted in Grayson, R. 1994 Industrial Organisation in nineteenth century Sheffield unpublished paper

⁴⁹ *ibid* p6

⁵⁰ Rudmose Brown, R.N. 1936 *Sheffield its rise and Growth* Geography 21 p175

⁵¹ 1797 Trade Directory Sheffield Archives p 24

'A factor or small merchant is a man who will either go direct into the market or will take orders from a larger merchant for certain classes of goods, and of course give them out to small masters to execute for him. And a plan which is adopted very largely, and which has had a great deal to do with the very low condition of the workers is this. The little master is a man who has no capital, and he is dependent on what he receives weekly. He will go to the office of the small merchant or factor, and apply for work; he is informed there is no work for him; in all probability he tries several places...; and he returns to the original place, and he is informed that he can have a little work which will be counted as stock work, if he will do it at a reduction....As a rule, the goods that are produced in that way enter into competition with firms of fair standing, and thus the market is brought down.'⁵²

If the 'little mester' did not possess enough capital to market his own goods, or was not employed directly by a larger firm, he probably used a factor to dispose of the finished products. To distribute the goods to the market however there had to be an adequate system of transport to other parts of the country and to the coast, from whence goods could be exported.

By the seventeenth century a 'complex local pattern of highways and byways determined by the physical geography of the region, by the needs of the local population, and by external demand for products'⁵³ was established. Radley, quoted by Dodd and Dodd, traced 60 packhorse ways over Bamford Moor, Hallam Moor and Eastmoor which ran mainly in the direction of Sheffield or Chesterfield.⁵⁴ One such westward route can clearly be seen today passing by Stanage Pole (Figure 1).

This way left Sheffield via Lydgate and the Long Causeway, passing Stanage Pole, and dropped steeply over Stanage Edge on the way to Bamford and Hathersage. Other routes in the seventeenth century, used by waggons and wheeled vehicles, were described as being in 'great decay for lack of repair';⁵⁵ but despite this, goods still reached the coast to be exported to places as varied as America and Narva, Estonia.⁵⁶

⁵² Select Committee on the Sweating System P.P.1889 XIII question 24717

⁵³ Hey, D. 1980 op cit. p14

⁵⁴ Dodd, A.E. and E.M. 1980 Peakland Roads and Trackways. Moorland Publishing p 105

⁵⁵ 1639 General Sessions ordered the repair of the King's highway between Sheffield and Halifax. Quoted in McPhee, A. 1939 The Growth of the Cutlery and Allied Trades to 1814 History of Industries in the Sheffield District (Society for Preservation of Old Sheffield Tools-Sub Committee) Typed Transcript Local Studies Library 683.82SSTQ p35

⁵⁶ Trade with Narva had been established from at least 1690. Sheffield Archives SPSt 60502 (Many thanks to Dennis Smith who found this document)



Figure 1: Packhorse Route from Sheffield to Bamford and Hathersage passing Stanage Pole. It is still a right of way today as can be seen from the photograph. (1996, looking towards Hathersage)

By 1777 turnpike roads had been established to Buxton, Sparrowpit, Wakefield, Derby⁵⁷, Rotherham, Halifax, Penistone, Manchester, Chesterfield, and Doncaster.⁵⁸ The Fairbanks had much to do with the setting out of these turnpike roads, and the 627 references in their papers provide an insight into the work of turnpike trusts and the methods used by the surveyors' firm in laying out roads.⁵⁹

⁵⁷ Route was turnpiked in 1756 (Dodd and Dodd 1980 op cit. p145)

⁵⁸ Fairbank Collection, Sheffield Archives, Field books 11-16, 20, 21, 24, 25, 36, 39, 40,50,52&52s,54-56,58s,81s,82s,94,159,242

⁵⁹Fairbank Collection, Sheffield Archives and Fairbank Database, University of Sheffield

Carriers listed in the 1787 trade directory left the town for Ashbourne, Bakewell, Bewdley, Birmingham, Cambridge, Gainsbrough, Halifax, Kendal, Leeds, London, Lincoln, Macclesfield, Manchester, Mansfield, Tideswell and York. (Table 1) The journey west to Manchester, via the Winnats pass, however, was still difficult, even at the end of the century. Samuel Corbridge, leaving Sheffield in 1790, wrote: 'Tomorrow morning I set off for Manchester at six o'clock- it is only 48 miles distant- and the coach will not arrive till ten o'clock at night. By Heavens! A tortoise would out gallop us.'⁶⁰

In the nineteenth century turnpike roads continued to be improved as the influence of Macadam and Telford spread.⁶¹ It is estimated that by the 1830s 22,000 miles, or one fifth, of all the roads in the country had been turnpiked or entrusted to Improvement Commissioners.⁶² By the end of the middle of the century all parts of the country could be reached in under a week by road.

A more efficient form, and perhaps a more important form, of transport than roads for bulky goods was by water. The improvement of the navigation on the River Don, in the 1720s and 1730s, brought an incentive for the cutlery industry and related trades to expand, as easier communication opened up larger markets. However, Tinsley was not accessible until 1751, all goods being taken by road until this date as far as Bawtry on the River Idle, twenty miles away, to gain access via the Trent and Humber to the North Sea links. The Don link was vital for the sustained growth of the cutlery industry, not only for the economic export of finished products worth more than £50,000p.a.⁶³ but also for the importation of iron. Since the sixteenth century local iron had been considered of insufficient quality for Sheffield goods, so Swedish and Russian iron and later steel were imported via Hull.

The Don Navigation was improved in 1819 by the building of the Sheffield Canal to the outskirts of the city. In 1878 a census was taken of all boat users⁶⁴. Of the 182 boats registered for carrying iron and general hardware 51

⁶⁰ Dodd and Dodd 1980 op cit. p 149

⁶¹ Pawson, E. 1977 op cit. P301.

⁶² Barker, T. and Gerhold, D. 1993 The Rise and Rise of Road Transport 1700-1990

Macmillan London p 38

⁶³ Willan, T.S. 1965 The Early History of the Don Navigation Manchester University Press

p 6

⁶⁴ 140/L1/1 Sheffield Archives

Name	Destination	Through	Forwards to	Departs	Arrives	Returns
Gregory's Waggon	Bakewell	Middleton & Hassop etc.	Leek			Saturday
Anderton's Waggon	Bewley	Chesterfield, Derby, Walsall, Woverhampton, Stourbridge and Kiddermister	Worcestershire, Gloucestershire, Herefordshire, Bristol, Exeter, Bridgwater and all parts of the W of England	Monday Evening	Saturday	Saturday Morning
Anderton's Waggon	Birmingham	Derby and Lichfield	Coventry, Oxford, Worcester, Gloucester, Hereford, Bristol, Bath, Exeter & all parts West	Tuesday	Saturday	Monday Morning
Royle's Waggon	Birmingham	Nottingham, Derby, Burton, Lichfield	Worcester, Gloucester, Hereford, Bristol, Exeter and all parts West	Friday Evening	Thursday Evening	Thursday Evenings
Sims Cart	Birmingham	Ashford, Leek, Newcastle and Lichfield		Monday and Friday		Same Days
Olivers Waggon	Cambridge	Worksop, Newark, Grantham, Stamford and Huntington		Monday Evening	Saturday Morning	Friday
Pashley's Waggon	Halifax	Wortley, Penistone, Huddersfield			Thursday and Saturday morning	Tuesday and Thursdays
Leadman's Waggon	Halifax	Huddersfield		Thursday	Saturday Morning	Monday
Anderton's Waggon	Kendal	Barnsley, Wakefield, Leeds, Bradford, Skipton and Settle	Keswick, Cockermouth, Whitehaven, Penrith, Carlisle, Glasgow and all parts of Scotland	Monday noon	Monday Morning	Monday
Royle's Waggon	Leeds	Barnsley and Wakefield	Newcastle, Carlisle and all parts north	Thursday Evening	Saturday noon	Monday morning
Anderton's Waggon	Leeds	Barnsley and Wakefield	Knaresbro', Boroughbridge, Northallerton, Darlington, Newcastle and all parts north	Friday Afternoon	Monday Morning	Tuesday
Ledmans' Waggon	Leeds	Barnsley and Wakefield	Durham, Darlington, Edinburgh, Glasgow and all parts of Scotland	Monday and Thursday	Tuesday and Friday Evening	Mondays and Thursdays
Clarke's Waggon	London	Mansfield, Nottingham, Loughbro, Leicester, Harbro' etc.		Monday, Tuesday, Thurs. and Friday evenings	Monday, Wed, Friday and Saturday Mornings	Monday, Tuesday, Wed. and Friday Evenings

Table 1: Examples of Journeys made by Carriers from Sheffield in 1787 from the 1787 Trade Directory.

came from Hull, sixteen from Doncaster, twelve from Thorne, five from Mexborough, seven from Grimsby, two from Stainsforth and one each from West Butterworth, Gainsborough, Barton on Humber, Castleford and Kilnhurst. The remaining 83 were from Sheffield, mainly from the firm of Earle and Haller.⁶⁵

The railway first arrived in Sheffield from its junction with the North Midland Line at Rotherham in 1838, but due to the local physical geography, which in the past had helped the growing trade, other rail links were not established until 1842 with the line to Manchester and Lincoln, and not until 1870 was a direct route established to London.

The combination of improvements to the transport network meant that by the middle of the nineteenth century larger firms sold their goods through 'travellers' and agents employed by the firm. Their importance to the financing of the larger firms is indicated in chapter two. Firms such as James Dixon, manufacturers of table cutlery and silverware, had orders on their books from Graham Town, Cape Town, Hong Kong, Buenos Aires, Manila, Singapore, Madras, Bombay, Havana, Rio de Janeiro, Shanghai, Sydney, Adelaide, Melbourne, Manchester, Geelong, Hobart Town, Lima, Jacna and Rio de Passiero with orders in America from Batavia, New York, Toronto, Philadelphia, Cincinnati; Ohio, St Louis, Boston, San Francisco, Albany, Charleston and Baltimore (Map 2) by 1840.⁶⁶ Dixon's order books illuminate this export trade with notes from the travellers and agents. For instance, the Foreign Trade book for 1841 records that goods to Batavia should be sent with two invoices 'one 30% lower than the other, to pay the duty on all articles to be priced at Nett prices as the Dutch Government will allow no other to pass customs'.⁶⁷ Another example is in Africa where Jacna is recorded as the principal town 45 miles from Port Africa. 'Mules and donkeys are employed for the travel and packages should not exceed 175 lbs.'

⁶⁵ Earle and Haller owners of fifteen boats (ibid)

⁶⁶ Dixon Collection B246 and B272 Sheffield Archives.

⁶⁷ Dixon Collection B271 Sheffield Archives

Tweedale suggests that by 1850 one third of the town's working population was involved in the American Trade.⁶⁸ However by the end of the century the introduction of high tariffs led to a decline in this market. Wostenholme's in particular, whose trade was 'almost exclusively American,'⁶⁹ suffered and by the 1890s its trade had declined by a third. The McKinley tariff of 1890, followed by increases in 1901 and 1909, indicated the growing success of the Americans' own cutlery trade.

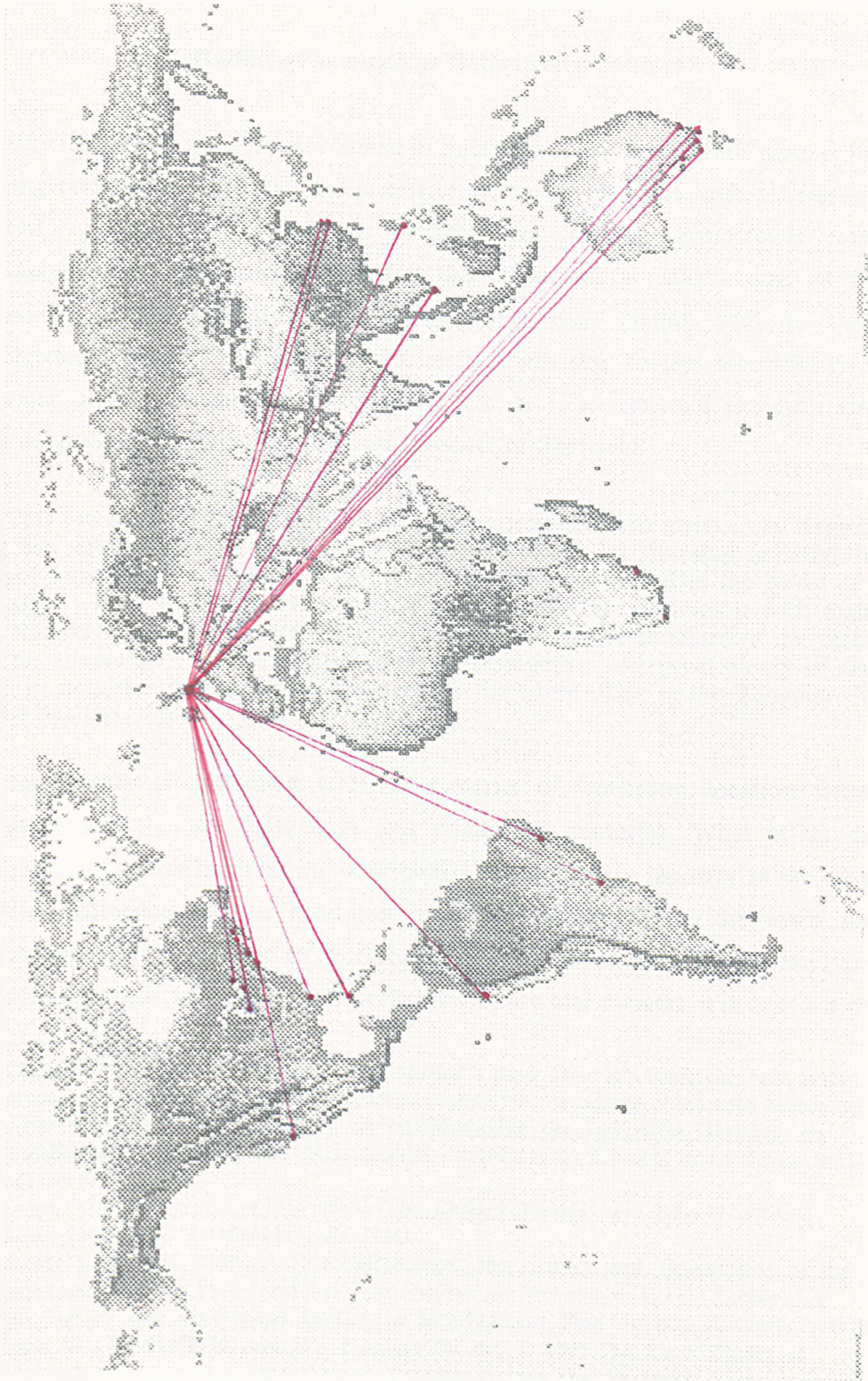
The industry in Sheffield today continues to be based on a world market where 'Sheffield' is renowned for its quality rather than quantity of production. In 1993 exports amounted to an estimated £23.2 million.⁷⁰

⁶⁸ Tweedale, G. 1996 op cit p 27

⁶⁹ Tweedale, G. 1994 *Strategies for Decline: George Wostenholme and Son and the Sheffield Cutlery Industry* Transactions of the Hunter Archaeological Society Vol 17

⁷⁰ Grayson, R. 1995 op cit p 11

Map 2: The distribution of James Dixon and Son's products in the 1850s.



The Location and Development of the Cutlery Trades in the Sheffield Region

‘Buildings as much as finds need a context’¹

Why the cutlery industry developed in Sheffield is not in question here. It has long been established that the accessibility of raw materials such as iron ore, coal, charcoal, and sandstone suitable for making grindstones were fundamental to its growth. The fact that it became a major centre for the industry rather than declining, as had other early centres such as York, Thaxted, Salisbury, Hereford and Chester,² was due to the accessibility of water power.³ Samuel and Nathaniel Buck in 1736 attached the following note to their engraving of ‘the East Prospect of Sheffield:’

‘This town was anciently famous for making iron heads of arrows...by degrees it has much improved in all manner of cutlery ware. Its situation is delightful and somewhat uncommon, it being situated on a round hill in the midst of a valley which is surrounded by much higher hills. This supplies it with many valuable falls of water necessary for carrying on the manufacture of the place. This advantage of streams to turn their mills, together with great plenty of coal in its neighbourhood render this perhaps the finest place in the Kingdom for the business which is here carried on.’⁴

This chapter is concerned with the patterns of workshop location which emerged in the late eighteenth and nineteenth centuries. What effect did sources of power have on the distribution of the cutlery industry in the area? What influence did the economy have on the growth of the town and subsequently on location of workshops? Did the topography dictate the types of building erected? To set the workshops in a wider context it is asked if the

¹ Clark, C. 1994 Ticking Boxes or Telling Stories A paper given at a conference held at the University of Leicester 7-9th July 1994 organised jointly by the Association of Industrial Archaeology, the National Trust, RCHME and English Heritage Managing the Industrial Heritage, its identification, recording and Management published by the School of Archaeological Studies, Leicester 1995.

² Lloyd, G.I.H. 1968 reprint of 1913 edition The Cutlery Trades Cass Library of Industrial Classics London p89 (hereafter Lloyd GIH 1968)

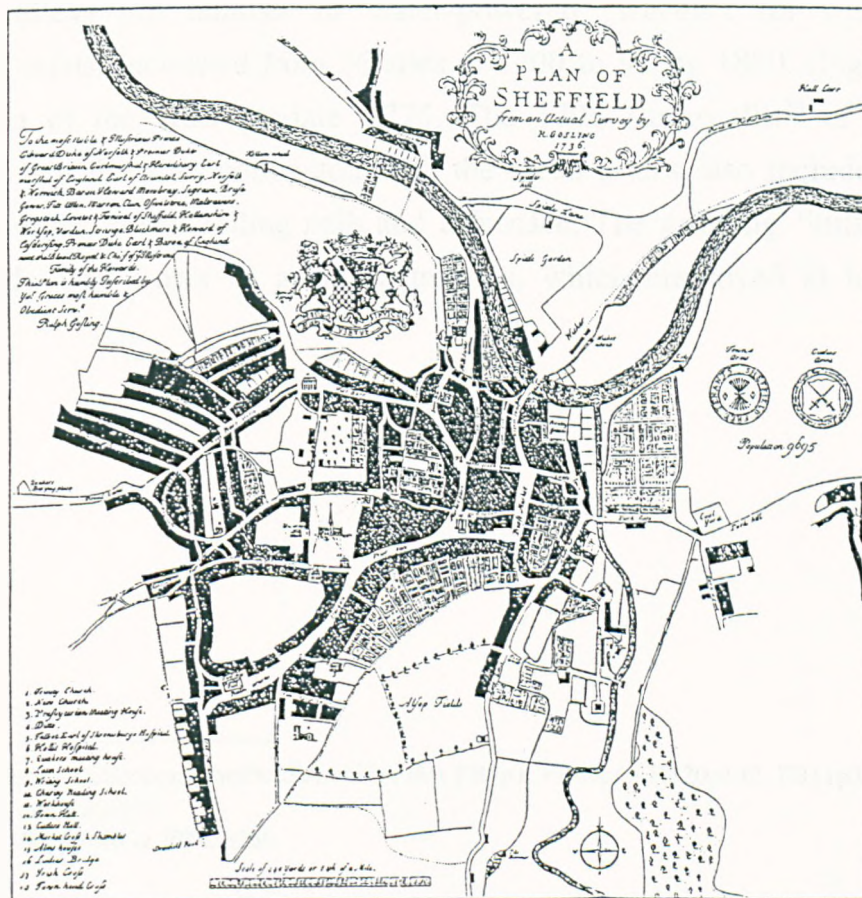
³ Hunter, J. revised by Gatty, A. 1869 Hallamshire, the History and Topography of the Parish of Sheffield Pawson and Brailsford Sheffield p6; Abercrombie, P. 1924 Sheffield a civic survey and suggestions towards a Development Plan Liverpool University Press p7; Linton, M. 1956 Sheffield and its Region p230; Hey, D. 1991 The Fiery Blades of Hallamshire Leicester University Press p8, Tweedale, G. 1996 The Sheffield Knife Book p16

⁴ Quoted in *A Study of Sheffield* read Feb 11th 1939 to the Manchester Geographical Society.

cutlery industry stimulated the growth of other industries and questions where these were located in relation to the buildings of the cutlery trades. Did they use the same structures? The conclusions will be drawn together at the end of the chapter.

The Late Eighteenth Century.

Even before 1750 Defoe had described Sheffield (1724) as ‘very populous and large, the streets narrow, and the houses dark and black, occasioned by the continued smoke of the forges, which are always at work. Here they make all sorts of cutlery ware.’⁵ In 1750 the population of Sheffield was about 20000,⁶ the town had begun to expand into the Hollis Croft area to the north west of the town centre as is clearly shown on Gosling’s 1736 map (Map 1).



Map 1: Gosling’s 1736 map clearly shows the expansion of the town outside its medieval boundaries.

⁵ Quoted in Tweedale, G. 1993 Stan Shaw, Master Cutler: The Story of a Sheffield Craftsman Cromwell Press Wiltshire p 7

⁶ For difficulties in estimating the Population of Sheffield in the eighteenth century see Flavell, N. 1996 The Economic Development of Sheffield and the Growth of the Town c1740-1820 Unpublished PhD Thesis University of Sheffield

It is unsurprising therefore that this new area of growth attracted the expanding cutlery industry. The Fairbank papers, from their start in the 1750s, show a concentration to the west of the town in the district around Hollis Croft. For example, the workshops of Thomas Whitehead, Thomas Smith, John Hirst, and Lawyer Redfern's smithies, are shown as being located in Peacroft; J. Broadbent's smithy was in Redcroft and James Staniforth's smithy in Workhouse Croft.⁷ Workshops are also recorded in other districts within the town, for example in the Wicker,⁸ Sand Paviours,⁹ Gibraltar,¹⁰ in Coalpit Lane,¹¹ Water Lane,¹² around the castle,¹³ and in, more rural areas such as Walkley,¹⁴ Wadsley¹⁵ Attercliffe,¹⁶ Pye Bank,¹⁷ Norton Lees¹⁸ and at Brincliffe Edge.¹⁹

In the valleys the number of water-powered 'wheels', for which most evidence exists, increased from 36 sites in 1700 to 97 by 1800. (Figure 1) All but seven of the sites predate 1775. The 1794 survey list²⁰ of Sheffield indicates that the sites connected with the metal trades also included eleven tilts, six forges, seven rolling mills and a furnace. The grinding 'hulls'²¹ listed contained 1029 trows or grinding troughs, which employed at least 1077 people.

⁷ From Fairbank Collection, Sheffield Archives refs FB5p1, FB83p64, FB20p132, FB11p37B, BB32p52B, and FB20p88

⁸ FB10p29, FB20p140 & FB25p26b

⁹ BB33p102

¹⁰ BB34p34

¹¹ Now Cambridge Street BB34p42

¹² BB36p20b

¹³ Castle Hill FB27p140, Castlefold FB12p80

¹⁴ FB33p21b

¹⁵ FB60p70b, BB44p84b

¹⁶ BB30p48

¹⁷ BB38p51

¹⁸ BB36p64

¹⁹ BB67p170

²⁰ Fairbank Collection Cp26/90 Sheffield Archives

²¹ Name of a workshop where grinding takes place.

Figure 1: Diagram showing the development of water-power on Sheffield's five rivers.



The built up area of the town is believed to have doubled in size between 1736 and 1808.²² The major landholdings of the Duke of Norfolk, Earl Fitzwilliam and the property of the Church Burgesses, were well placed to take advantage of this growth. Indeed building land seems to have been let 'by the estate as it was needed.'²³ Certainly there seems to have been no restriction on the location of industry nor any attempts to inhibit its spread.

The wealth created by the cutlery, Sheffield plate, iron making and finishing and merchanting trades allowed the extension of the town and further development of the isolated suburban tenements so characteristic of the region.²⁴

In 1770 the grid-iron street pattern was laid out on Alsop fields, formerly part of the Duke of Norfolk's deer park: this became the Arundel Street district, with a street plan which still exists today.²⁵ This was the first serious attempt at town planning in Sheffield and was designed as a middle-class residential area. The district, failing to develop at the end of the eighteenth century, became a mixture of domestic and industrial property in the nineteenth. The 1787 directory shows workshops still clustered in the Hollis Croft and Central areas (Map 2).

Why Were the Workshops of the Cutlery Industry Located in Clusters Across the Town?

The eighteenth century saw changes in the organization of the cutlery trades. Originally the process of making a blade, from forging to hafting, would be carried out by one person. Prior to the incorporation of the Cutlers' Company in 1624 there had been almost a 'complete absence of differentiation or specialisation.'²⁶ By 1748 however the grinders were sufficiently distinct to have formed their own sick club, but the combinations of forger-grinder or

²² Nunn, P. 1985 The management of some S. Yorkshire Landed Estates in the 18th and 19th centuries, linked with the central economic development of the area (1700-1850) PhD University of Sheffield p334

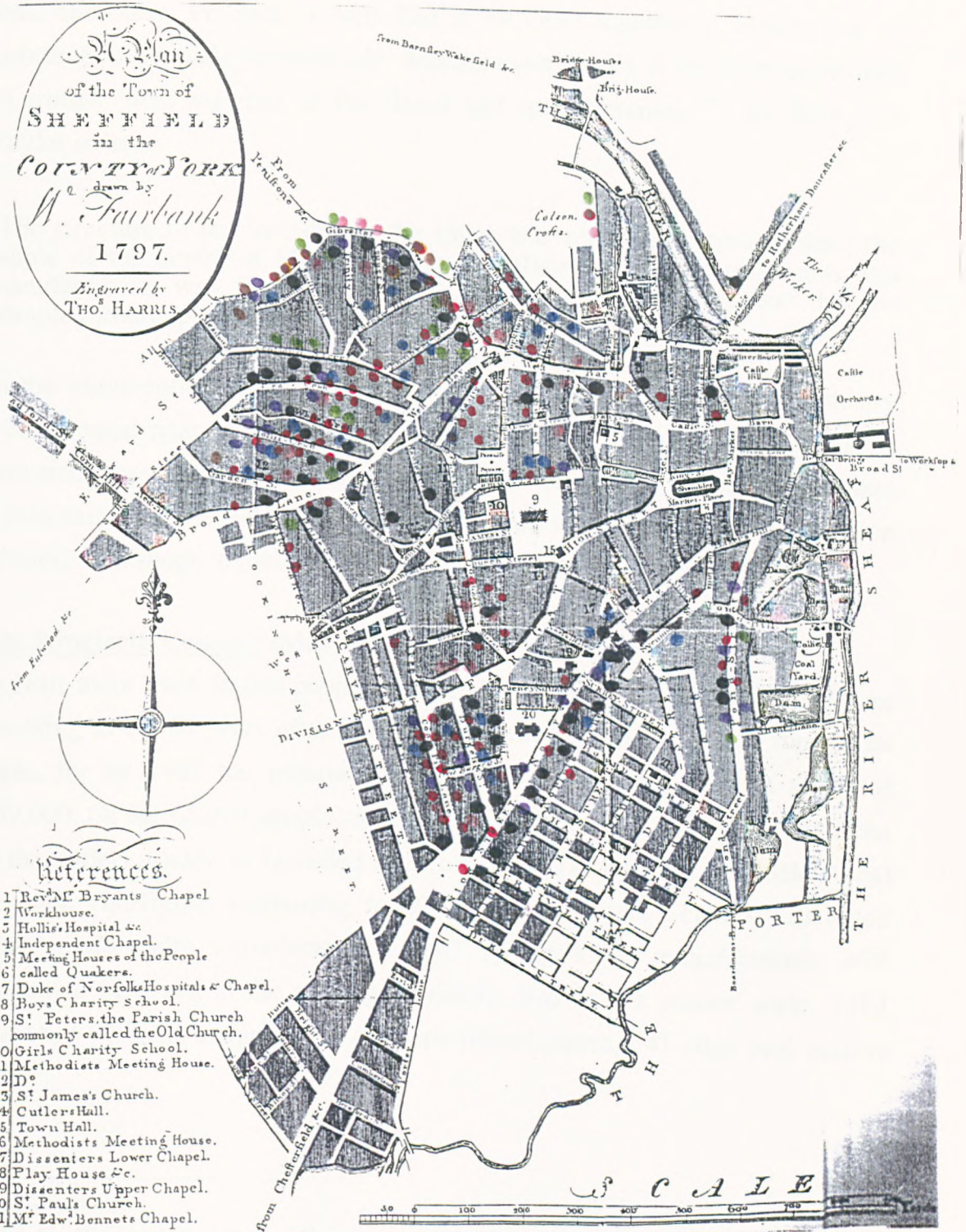
²³ Chalklin, C.W. 1974 The Provincial Towns of Georgian England: A Study of the Building Process 1740-1820 Arnold London p 72

²⁴ Nunn, P. 1985 op cit. p336

²⁵ Map 3&6 show the area's development

²⁶ Lloyd, G.I.H. 1968 op cit. p174

Map 2: The location of the cutlery industry in 1787. Note the concentration in the Hollis Croft area to the NW of the town centre.



forger-cutler did not vanish completely.²⁷ The principal effect of this separation of processes was that each 'little mester' became dependent on at least one other. Production units had to be close together if cutlery was to continue to be made economically and thus workshops in the town developed in groups 'held together as functional and spatial entities.'²⁸ As Sally Ann Taylor writes:

'The structure of the industry in the town was remarkably complicated; the whole of the centre of Sheffield, with its outworkers, teams, merchants and manufacturers, was likened to one huge factory, drawn together by the complex interdependence of skills and products.'²⁹

In the eighteenth century therefore the workshops of the cutlery industry were located near to the workers' housing, dispersing only to find water-powered sites for grinding. Specialisms also developed in several villages which surround Sheffield. This will be discussed when examining the location of rural workshops in more detail later in the chapter.

The Nineteenth Century (Map 3)³⁰

In 1801 there were 46,000 people living in Sheffield, the population more than doubling in the 50 years after 1750. In the next 50 years it was to more than triple, for by 1851 the population was 135,000 and by 1901 it stood at 409,000. Of the 65,000 people recorded in 1821³¹ around 8500 were involved in the cutlery trades, as recorded by a survey in 1824 by the Sheffield Local Register. This figure, accounting for 97% of all of Britain's cutlers,³² included 2240 table knife manufacturers, 2190 spring knife manufacturers, 478 craftsmen involved in the making of razors, 806 in the scissor trade, 1284 involved with file manufacture, 400 saw manufactures, 541 edge tool makers

²⁷ *ibid* pp177-8

²⁸ Gad, G. 1994 *Location patterns of Manufacture in Toronto in the early 1880's* **Urban History Review** **XXII** no 2 p114

²⁹ Taylor, S.A. 1993 in Hey D. et al eds **A History of Sheffield 1843-1993; Society** Sheffield Academic Press Sheffield p 203

³⁰ Map shows the six areas discussed in the text.

³¹ All census data for 19th century from Lloyd, G.I.H. 1968 *op cit.* p152

³² Taylor, S.A. 1993 *The Cutlery Trades* in **A History of Sheffield 1843-1993; Society** Sheffield Academic Press p194

and 480 fork makers, as well as 130 rural workers of various branches of the trade.³³ As Trinder writes:

'Industrial enterprise could be self-stimulating. The establishment of a successful concern could demonstrate that a particular activity was successful in a certain area, it could create a skilled labour force; make available products for the finishing trades, demand for raw materials, servicing skills and transport facilities.'³⁴

How did the Economy Affect the Expansion of the Cutlery Industry and Its Location?

Development in the early part of the century was partly facilitated by the selling of Norfolk land in 1802, 1805, 1810 and 1814, which realised over £140,000 for the estate.³⁵ With each economic boom came a growth in the number of workshops and factories, helped by the increase in credit allowances for the larger firms by the newly established joint stock banks.³⁶ The largest boom in the first half of the nineteenth century came in the 1830s. In all 156 new streets were proposed and created during this period. However, there continued to be a mix of residential and industrial properties. All the areas considered here expanded during this period as can be seen from Figure 2.³⁷

The boom broke, however, and the 1840s proved to be a time of hardship, but Lloyd and Unwin have suggested that, far from being a period of contraction in the cutlery industry, the number of firms increased during times of depression; each man could set up on his own for as little as £5.³⁸ As can be seen from the graphs in Figure 2, the number of workshops did indeed continue to increase during periods of depression, in Hollis Croft, the areas

³³ Lloyd, G.I.H. 1968 op cit. p 445-6 Appendix V

³⁴ Trinder, B. 1982 The Making of the Industrial Landscape Dent p7

³⁵ Nunn, P. 1985 op cit. p 339

³⁶ The financing of construction of workshops will be considered in the following chapter.

³⁷ Note that the Figures given are for single years which therefore represent growth in the previous decade, thus the Figures for 1830-31 represent the growth in 1820-21 and the Figures for 1840-41 represent the growth for 1830-31 etc.

³⁸ Lloyd, G.I.H. 1968 op cit. p193 and Unwin M.J. 1988 The Pen and Pocket Knife Industry, an investigation into the historical tradition of working practices and trade organisation, MA thesis University of Sheffield (CECTAL)

around Devonshire Street and Rockingham Street (Western), the newly developed Park area and by the Riverside.

The 1850s saw another building boom, especially in areas west and north of the town centre. In the centre ‘the decline in the rateable value shown for large dwelling houses points to the conversion of many of them into factories and workshops. Almost every existing firm dating from those years has records showing conversion and adaptation.’³⁹

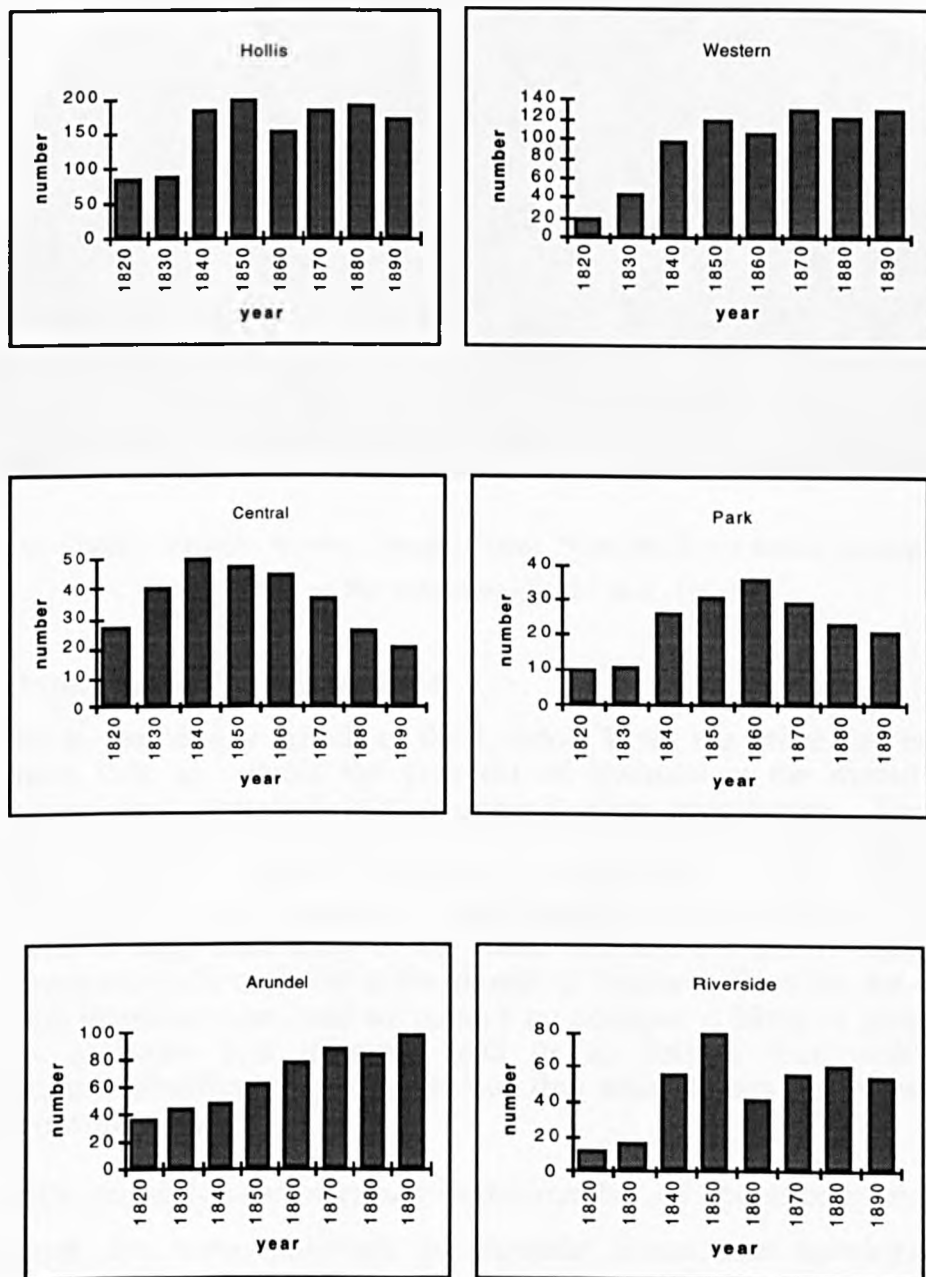


Figure 2: The number of workshops relating to the cutlery industry in each area 1820-1891 (Data from the ratebooks).

³⁹ Pollard, S. 1959 A History of Labour in Sheffield. Liverpool University Press p 5

This was particularly true of Alsop Fields (Arundel District) where even today signs of conversion from houses to workshops can be seen. Examples are Slater's (Figure 3a) and 92 Arundel Street (Figure 3b).



Figure 3a: Slater's Venture Works, Arundel Street. Note the Town-house frontage and the addition of the workshops to the rear. (1995)

In 1853 the *Sheffield Times* reported:

'A writer in the Money Article of the London Times the other day expresses an opinion that, as regards the prospect of business in the manufacturing districts, the new year had seldom opened more propitiously. Sheffield is certainly no exception to the report, for if the demand does not actually exceed the supply, they are so nearly balanced as to keep all the various trades of the town in the most active condition. Those familiar with the trade of Sheffield know, that if any, deficiency in the usual demand for goods exists, some symptoms are usually manifest in the month of January. Thus for we can hear of no such manifestations, and we believe no collapse is likely at present. The opinions of those best informed lead us to believe that nothing like speculation in Sheffield goods exists but that what orders are given are for actual consumption.'⁴⁰

The 1850s certainly saw increases in the number of operational workshops throughout the town, although the Arundel Street area developed more

⁴⁰ *Sheffield Times* Jan 15th 1853. Sheffield Local Studies Library.



Figure 3b: 92 and 92A Arundel Street. An example of a typical residential property built on Norfolk land at the end of the eighteenth century. Note the workshops to the right (A1) which were associated with it. In 1868 the house became the headquarters of the Co-operative Filesmiths Society.

gradually throughout the nineteenth century, with no spectacular periods of growth (Figure 2).

The 1860s continued to be prosperous, with only a minor slump in 1866. The rest of the decade was marked by a shortage of labour.⁴¹ Severe depressions were to come between 1874-9, as elsewhere in the country, and although there was a brief period of relief they were renewed in 1883-1886 and in 1893. During the last forty years of the century the graphs indicate a levelling out and then a reduction in the numbers of cutlery workshops, especially in the Central and Park areas of the town.

Despite this reduction in workshop numbers by the end of the century, large firms remained the exception rather than the rule in Sheffield. The introduction of steam power did not have the significant effects seen elsewhere, in, for

⁴¹ Pollard, S. 1959 op cit. p 127

instance, the textile industry, where steam power had led to factory production in the conventional sense. Jones and Townsend wrote:

'The nineteenth century factories were only such in the sense of being large buildings, containing up to 800 workers but more usually from 50 -200 performing their tasks under the direction of individual management. In other respects the factories were compatible with the traditional handicraft system. The buildings were in fact aggregations of craftsmen's workshops.'⁴²

Of the 505 firms identified by the rate books as being in operation in 1891, 27 could be classified as 'large' or 'giant' using Lloyd-Jones and Lewis' classifications.⁴³ The others could be divided into 62 'medium' and 416 'small' firms, using the same classification. Even in 1948 very little had changed. Figures quoted by Jones and Townsend showed that the majority of firms still employed under ten people, although the larger businesses had more employees in total (Table 1).

Numbers employed	Number of firms	Total employed
1-10	288	1298
11-24	76	1325
25-49	39	1274
50-99	31	2199
100-199	15	2084
200+	13	6164

Table 1: The number of firms in 1948, indicating how little the industry had changed since the eighteenth century.

It has been decided that Lloyd-Jones and Lewis's classification should be used here, as it had been derived from the same data set, the Sheffield rate books, utilised for this research. By extracting data for every year from 1880-1901 for the iron and steel industry they were able to suggest divisions in the

⁴² Jones, G.P. and Townsend, H. 1953 *The Rise and Present Prospects of the cutlery trades International Cutler Vol. 3 no 1* p 18

⁴³ Lloyd-Jones, R. and Lewis, M.J. 1983 *Industrial Structure and firm growth: the Sheffield iron and Steel Industry 1880-1901 Business History 25* pp60-63

Using the rateable value (RV) of property, Jones and Lewis's Classification was: Small = RV of £1-150, Medium £151-500, Large = £501-1500 and Giant = £1501+. Using the Rates paid, Small = £1-10, Medium = £11-30, Large = £31-80 and Giant £81+

size of firm by taking the rateable value and 'plotting clusters of firms to determine break off points.'⁴⁴ Although the data may be skewed towards the larger firms because of the inclusion of the steel industry in the division of the rates, i.e. some of the medium-scale cutlery firms may have been large by the standards of the cutlery industry, the data set was considered sufficiently accurate to produce a picture of the scale of production in the cutlery industry throughout the nineteenth century. The terms of small, medium, large and giant throughout this chapter are therefore based on Lloyd-Jones and Lewis's classification.

The Six Areas Identified as Centres of the Cutlery Trades in the Nineteenth Century.⁴⁵

Six areas have been identified as having significant numbers of workshops related to the cutlery industry concentrated in them. Specific analysis of the rate books throughout the whole of the nineteenth century has allowed an assessment to be made of the location of the industry and its organization. Each of the six districts identified has its own characteristics. By plotting the data from the rate books, on reprints of the first edition OS Maps, the development of each area was shown. Analysis of area-specific information through database manipulation has also provided a detailed image of the likely buildings that would have existed, whether small courtyard workshops or large tenement factories. This section addresses the question of whether topography affected the types of buildings which were erected or whether there were other influences affecting each area's growth.

The **Hollis Croft district**, already mentioned as being the first area of expansion outside the medieval boundaries of the town in the eighteenth century, had the most number of workshops by the 1820s and it maintained this characteristic throughout the nineteenth century. In 1848, Haywood and Lee, Commissioners for a Sanitary Report for the Borough of Sheffield, described the area as 'a multitude of small workshops, mostly producing small

⁴⁴ *ibid* p10

⁴⁵ All information in this section comes from the work carried out by the author on the rate books for Sheffield 1820-1891, in conjunction with the trade directories.

items of cutlery, and a few larger cutlery manufacturing establishments.⁴⁶ By the end of the nineteenth century the rate book evidence shows that 30% of all 'cutlery'⁴⁷ manufacture took place within this area. In the years sampled, 1820 to 1891-92, in ten yearly intervals, a total⁴⁸ of 1057 entries relating to the cutlery trades in the district were recorded. Of these, 729 had a full address, including property numbers, amounting to a total of 544 different workshops.⁴⁹ However the rate books, cross referenced with the trade directories, can only confirm 172 workshops in use by cutlery and the allied trades in 1891, although as demonstrated below, this was about the average occupied in any year. Why should such a large number of workshops have been vacated by the cutlery trades? This feature of the data does not occur in the 1890s alone, nor is it a specific feature of the Hollis Croft area (Figure 4).

The Hollis Croft area experienced its largest growth in the 1830s, when the number of recorded workshops in the rate books more than doubled, from 88 to 183. In 1850 the maximum of 197 workshops in use by the cutlery trades was reached. This level, 183-197 workshops, was maintained until the end of the century, with the exception of a dip in numbers to 155 in 1860 and again in 1891-92 to 172. The 1860 drop in numbers can perhaps be explained by the preceding boom years of the 1850s when larger firms were setting up, in particular in the nearby riverside area, and workers were attracted by regular work and pay. The numbers of workshops in use increased again in the 1870s due to a period of economic depression when more firms established themselves in the 'cut throat' market place.

Throughout the whole of the nineteenth century the area was dominated by small workshops (Figure 5). From the 1850s medium-scale works do appear but they number less than sixteen in total at the end of the century. Probably due to the gently sloping ground and the densely packed housing, only two large-scale works, situated on the outskirts of the area, were built in the nineteenth century. These were the workshops of J. Askham in the 1870s at

⁴⁶ Haywood, J. and Lee, W. Report on the Sanitary Conditions of the Borough of Sheffield in 1848 Local History Pamphlets Sheffield Local Studies Library.

⁴⁷ Cutlery here is used in the specific sense rather than to mean the cutlery and allied trades.

⁴⁸ i.e. the number of entries in the Hollis Croft areas that had accumulated by 1891

⁴⁹ 92 workshops in 1890-91 had no address and therefore cannot be confirmed as being different from previous entries.

Figure 4: The number of workshops in use by the cutlery industry compared to the number known to have existed in the Hollis Croft area by year.

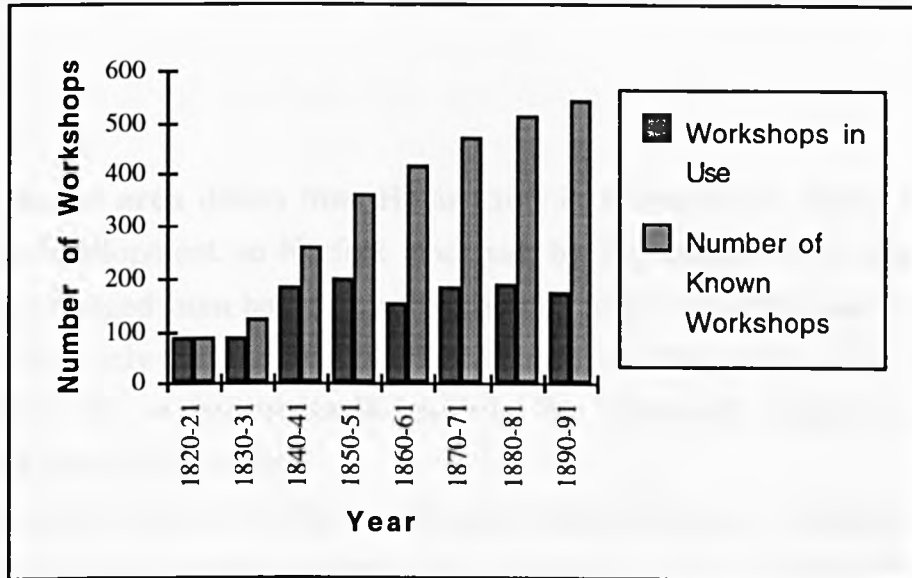
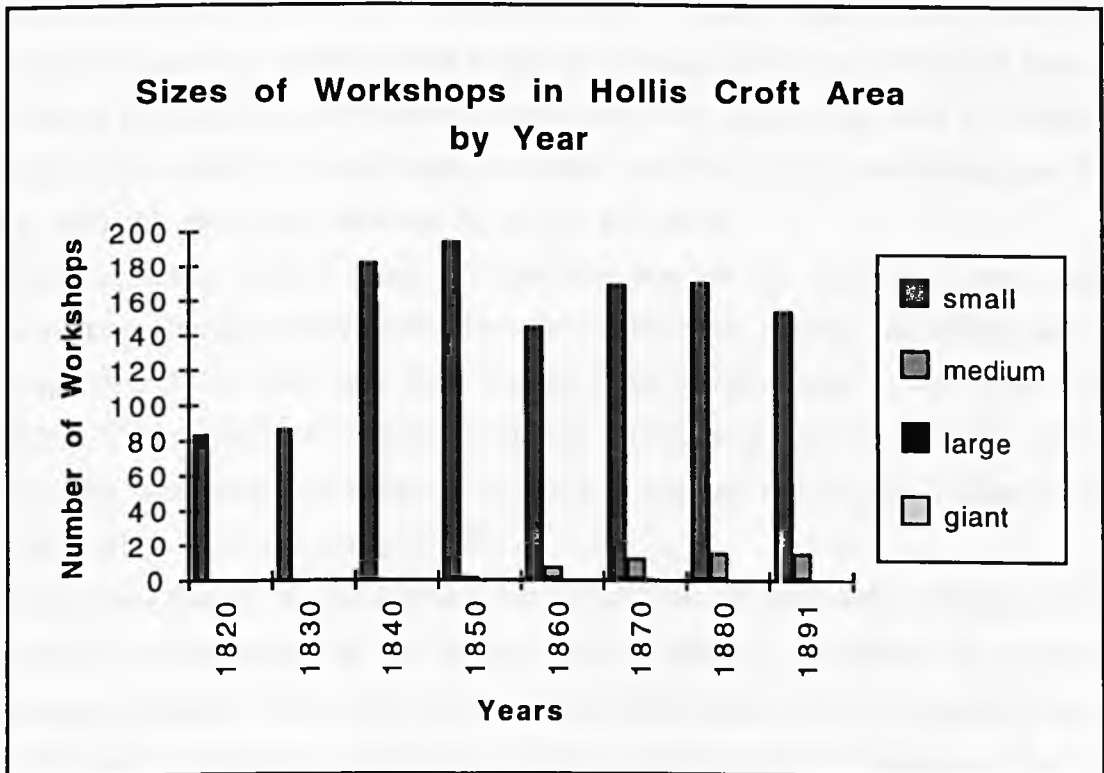


Figure 5: The size of workshops in the Hollis Croft area by year,



57 Broad Lane and the works of Wade, Wingfield and Co, later Wingfield, Rowbotham and Co, cutlery manufacturers and general merchants of table and spring cutlery, razors, files, steels and saws, in the 1880s at 82 Tenter Street.

The **Arundel area** differs from Hollis Croft in a number of ways. The first planned development on Norfolk land had, by the middle of the nineteenth century, changed from being a residential area to an industrial one. Although today it is mainly the large works which remain, the rate books show that the majority of the workshops in the area in the nineteenth century could be classed as small (Figure 6).

For example, at the end of the century only Joseph Rodgers' works in Norfolk Street could be regarded as giant, with a rateable value of £1484-10-00 and paying a rate of £111-6-9. Eight works could be classified as large, for example Bingham and Son, part of Walker and Hall's firm in Howard Street, and Thomas Turner and Co's works in Suffolk Street, the group as a whole paying rates of between £33-03-09 and £61-16-1.5. Twenty eight works could be classed as medium, including the premises of Atkin Brothers in Matilda Street, Thomas Ellin and Co. in Sylvester Street and John Sellers and Son in Arundel Street. The other 241 small works recorded over the period, numbering just 78 by 1891-92, paid rates between 2s 3d and £9-18-00.

There appears to have been no specialisation in the Arundel Street area, workshops being evenly distributed throughout the cutlery and allied trades. Unlike the Hollis Croft area there was no rapid development in the 1840s and 1850s. The number of workshops slowly increases (Figure 2) until the 1870s when 88 workshops are recorded as being in use and a final peak comes in the 1890s when there are a total of 99.

This shows that unlike the Hollis Croft district, the Arundel area, in terms of the number of workshops in use by the cutlery industry, continued to expand, perhaps because of its better access to communication routes, especially after 1870 when the nearby rail link to London was completed. However, like the Hollis Croft district, there are a number of workshops which cease to be used by the cutlery trades (Figure 7). From the 1830s these increase rapidly in number so that by 1891 there are 147 vacated buildings. These are likely to

Figure 6: The size of workshops in the Arundel area by year.

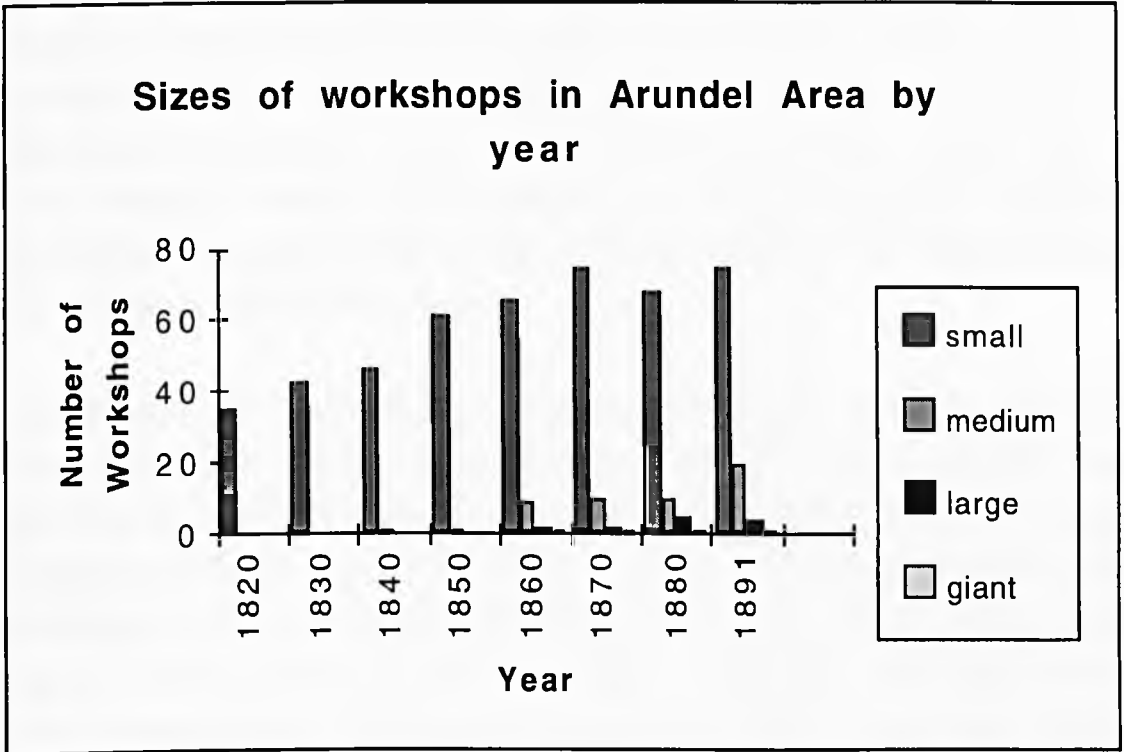
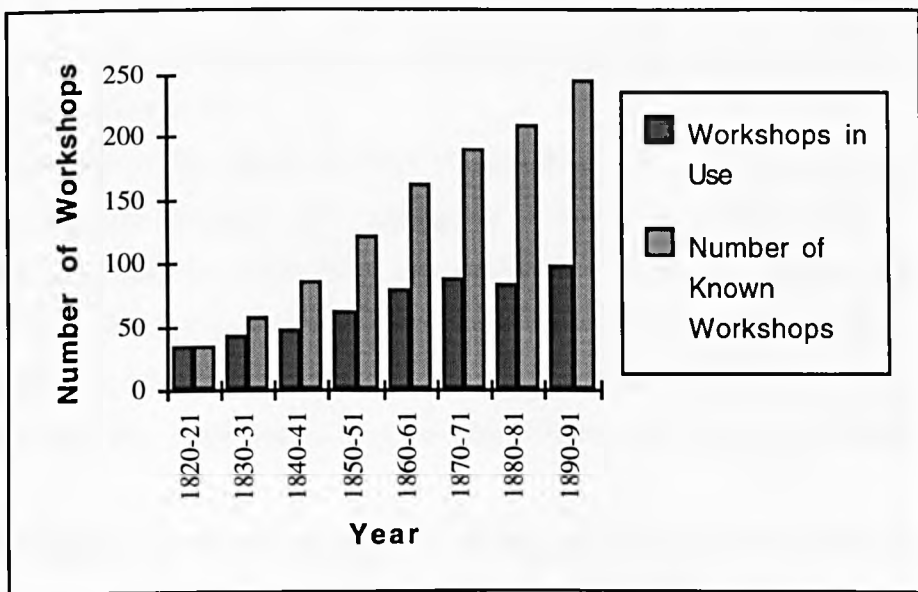


Figure 7: The number of workshops in use by the industry compared to the number of workshops that were known to have existed in the Arundel area by year.



have been taken over by other industries, for example 71 Arundel Street was converted from the premises of J Hobson and Son to the Talbot Hotel. Others may have been demolished to make way for larger works such Thomas Turner's in Suffolk Street, W & S Butcher, Arundel Street, Gallimore and Co and Mappin and Webb, who all increased the sizes of their premises or moved into larger works during the course of the nineteenth century. Gallimore and Co's works, for example, at 19 Arundel Street covered the previous premises of H Wilde, mark maker, Benjamin Fox, steel refiner, and Hoole, Staniforth and Co, merchants and manufacturers.

The **Western area** is located west of the modern Cambridge Street (formerly Coalpit Lane) between Broad Lane to the north and South Street (now The Moor) to the south. The district developed from the 1820s onwards, after the turnpiking of the Glossop Road. The streets west of Trafalgar Street were not developed until the 1830s, and the rapid expansion of this part of the town can be seen by comparing Tayler's 1832 Map with White's 1841 Map (Maps 4 & 5). Growth continued at a steady rate until the 1850s, when a total of 119 workshops were recorded in use. As in the Hollis Croft district there was a decline in the numbers recorded in the 1860 rate books, down to 105, rising to a plateau of between 120 and 130 workshops until the end of the century. The numbers of workshops which were subsequently vacated by the cutlery industry increased significantly from the 1850s and by the end of the century there were 219 workshops which were no longer recorded as being in use by these trades (Figure 8).

These workshops are likely to have been taken over by other trades moving into the area, for example the packing and horn trades who moved into the area after the increase in rates in the central area from the middle part of the century. By 1891 over 50% of cutters and pressers of horn, ivory etc. were in the locality as were 38% of the city's edge tool trade. Thirty per cent of the cutlery trade, the same proportion as the Hollis Croft area, was also located here.

Like the Hollis Croft area the majority of the workshops in the area were small (Figure 9), accounting for 334 of the number recorded, although larger works did develop from the 1870s. Examples are Wm Hutton and Sons' works in

Map 4: Tayler's Map 1832. The location of the cutlery industry (marked in green) is shown in relation to the steel manufacturers (red dots), forgers (red/blue dots) and horn dealers (yellow dots). Note how the Western area has expanded by the 1840s by comparing this map with White's Map of 1841.

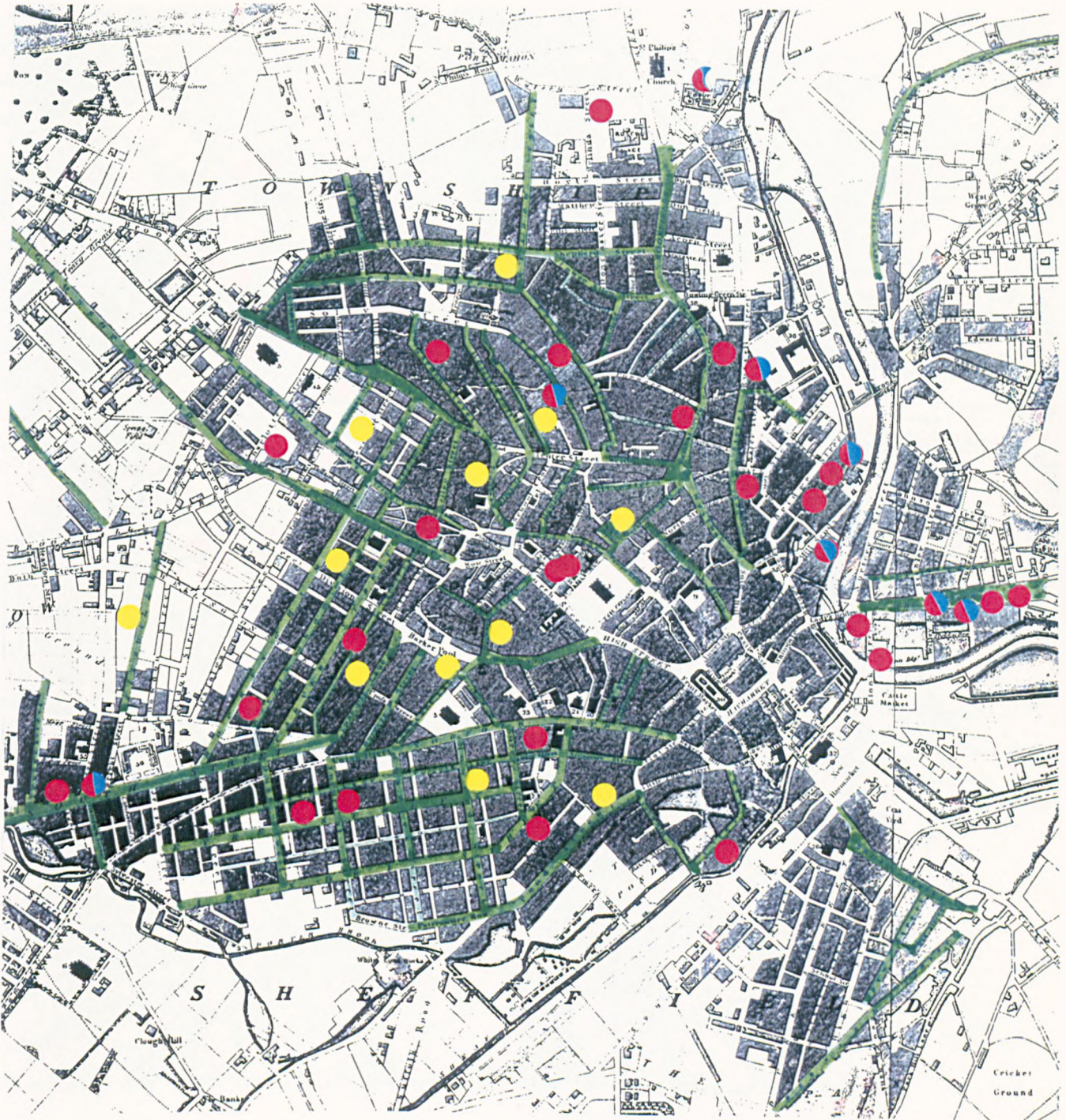


Figure 8: The number of workshops in use compared to the number that were known to have existed in the Western area by year.

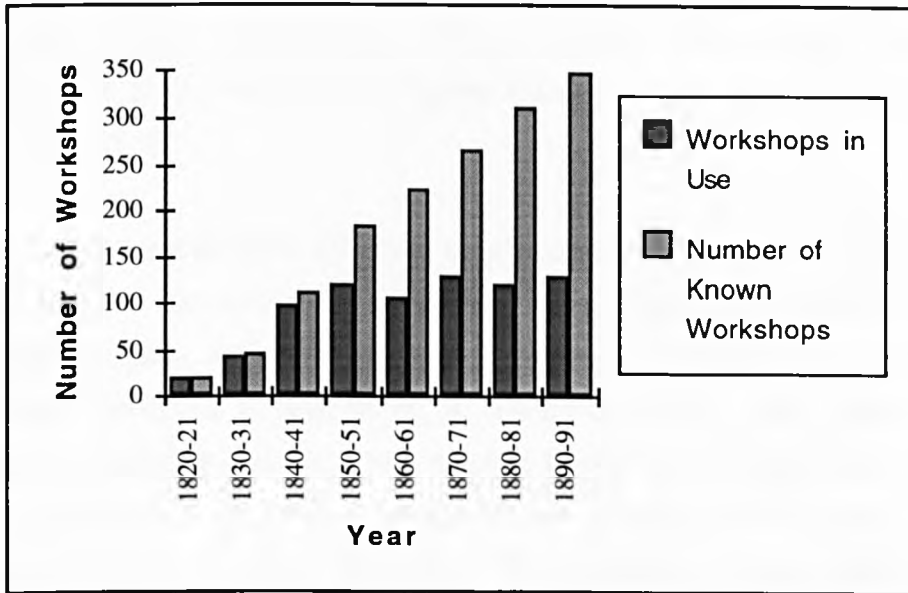
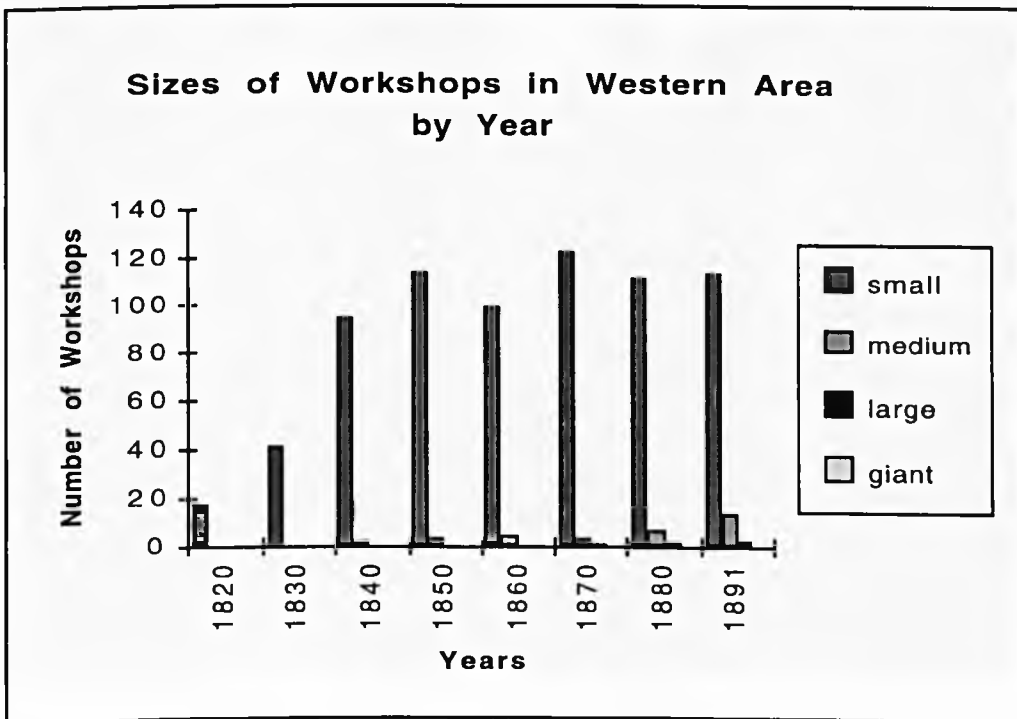


Figure 9: The size of workshops in the Western Area by year.



West Street and Ward and Payne at 106 West Street. In 1890 these firms paid rates of between £34-00-00 and £50-00-00.

There were 21 medium-sized works in the area, including Wellington Works belonging to George Wostenholm, William Tyzack's Eyewitness Works, and the works of R Sorby and Son on Carver Street paying rates of between £17-9-6 and £27-15-00.

Although the **central area** declined as a centre for cutlery production after the 1840s, due to the increases in rateable value, some cutlery firms remained. In Paradise Square, for example, whose frontages (Figure 10) suggest an upper-class Georgian development, a manufacturer of files, scythes, hay, machine and reaping knives, hoes, reaping hooks and sickles continued to work in the 1870s. Workshop windows can be seen at the rear of some buildings in Paradise Square (Figure 11). The main type of structure occupied by the cutlery industry was small but larger works did exist (Figure 12) including world-wide exporters and 'Cutlers to the Queen' Joseph Rodgers.



A

Figure 10: Paradise Square. A Georgian square with fine frontages. Workshop windows were found at the rear of A1.



Figure 11: Workshop windows at the back of Paradise Square (Figure 10 (A1)).

By the end of the century (1891) there were 123 'redundant' cutlery workshops and just 21 in use (Figure 13). These included medium-scale works such as John Kirk's of Townhead Street, manufacturer of spear point, table, butchers and dagger knives, spring cutlery, razors, scissors, edge tools, saws, files, steels etc. John Kirk had moved from the western area to the central area in the 1880s. There were also the works of steel, file, hammer and saw manufacturers, Marsh Brothers in Shude Hill and the large-scale works of Joseph Haywood and Co, Pond Street, Joseph Rodgers and Son, Pond Hill and the works of J Round and Son in Tudor Street. Like the larger works in the Hollis Croft area these larger workshops were located on the outskirts of the district on the boundaries with the Riverside and Arundel Street areas.

Figure 12: The size of workshops in the Central Area by year.

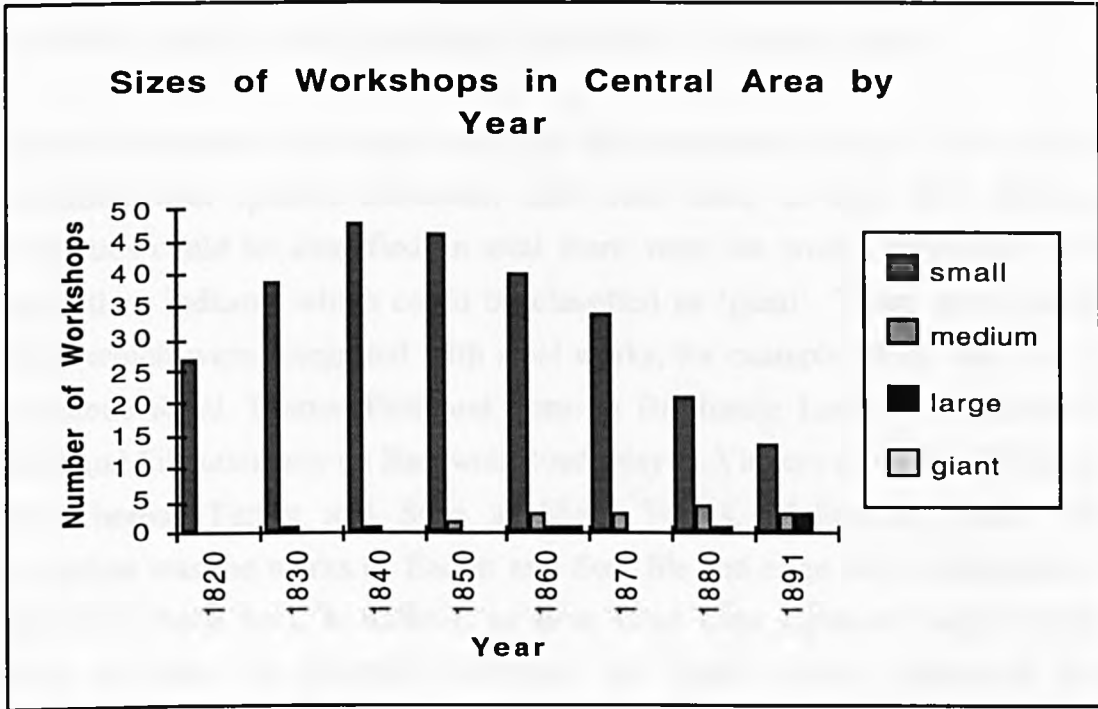
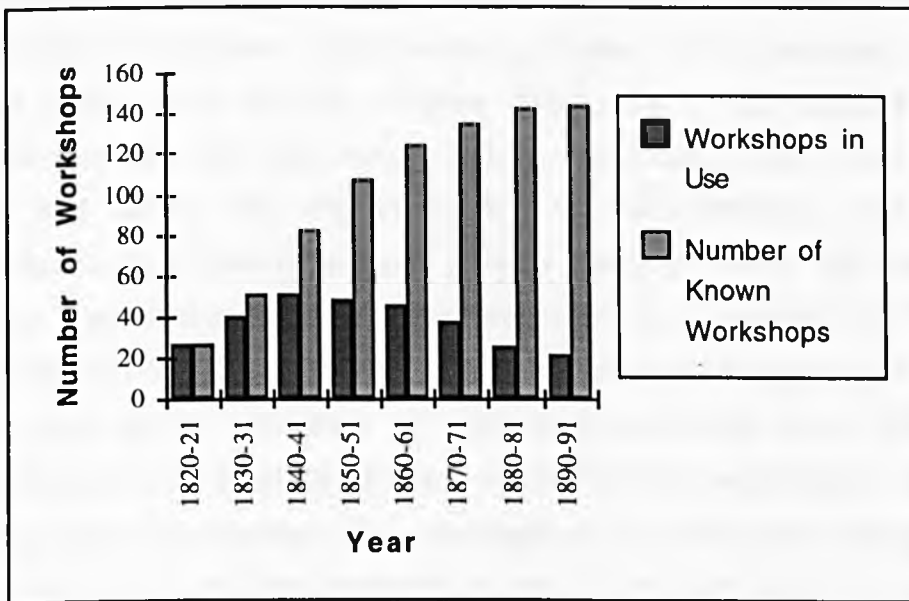


Figure 13: Number of workshops in use by the cutlery industry in the Central Area compared to those known to have existed by year.



The last major area to be considered is that of the **Riverside** development along the Don. The majority of works here were on a larger scale than found elsewhere in the city (Figure 14). Like the steel works, the larger cutlery firms found this was the only land where they could build on any scale.

Of the 380 entries in the rate books over the nineteenth century 170 could be identified with specific addresses, and from these at least 138 different properties could be identified. In total there were six works connected with the cutlery industry which could be classified as 'giant'. These were mainly those which were integrated with steel works, for example, Bury and Co on Penistone Road, Thomas Firth and Sons on Brightside Lane, the Hallamshire Steel and File company on Bardwell Road, Naylor Vickers and Co at Millsands and Thomas Turton and Sons at Sheaf Works, Maltravers Street. The exception was the works of Eadon and Son, file and edge tool manufacturers on Savile Street East. In addition to these there were eighteen 'large' works such as those of Ibbotson Brothers on Green Lane, merchants and manufacturers of steel, files, saws, railways springs and engineers tools, Moss and Gamble in Russell Street, manufacturers of steel, files, saws and edge tools, and Walters and Co on Penistone Road, merchants and manufacturers of table knives, shoe and bread knives, spear point knives, silver and plated dessert and fruit knives. These works paid between £30 and £77 towards the poor rate in 1890-91. 'Medium' sized works accounted for 21 premises, such as Michael Hunter and Son on Andrew Street, who were merchants and manufacturers of table and spring cutlery, saws, files, edge tools, razors, scythes and skates and Wm Peace and Co. in Mowbray Street, who manufactured steel, files, edge tools, scythes, machine knives and cast steel hammers. The rateable value of these properties was between £10-5-8 and £30-6-6 in 1891-92. However despite this area having the biggest percentage of large scale works there were still 226 small workshops there. The major period of growth had been the 1830s, as in the Western and Hollis Croft areas, when the numbers increased from seventeen to 57, the peak coming in the 1850s when the workshops recorded in use by the rate books totalled 79. After that date the numbers settled around 60 until the end of the century. Unlike the other areas described, the numbers of workshops used in the area

Figure 14: The size of workshops in the Riverside area by year.

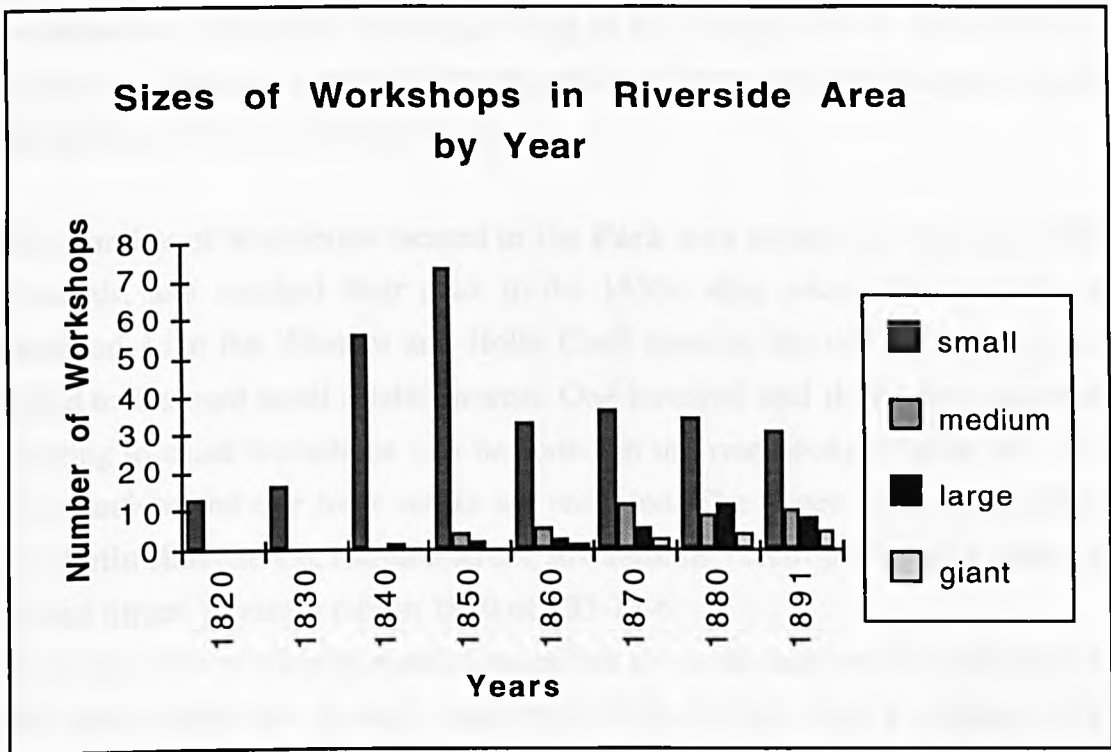
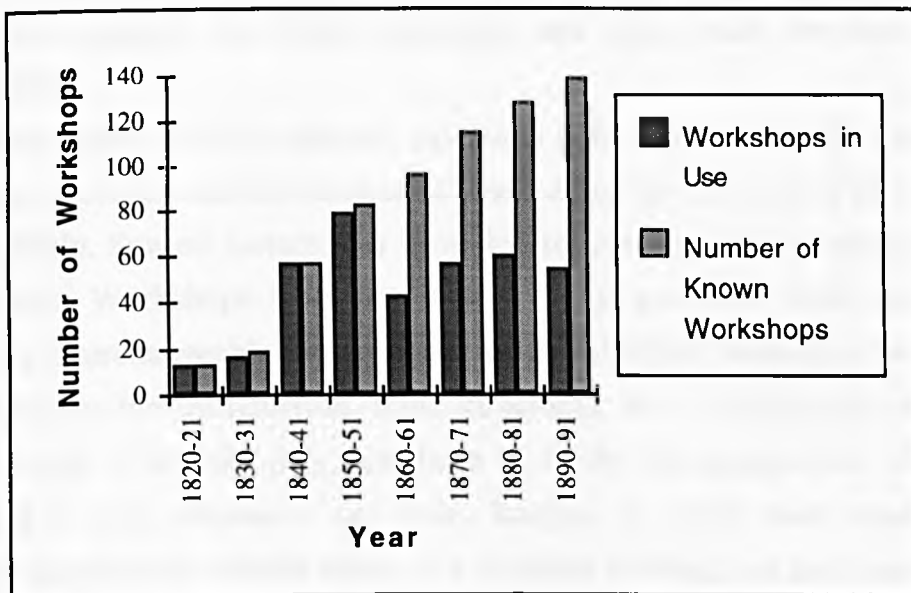


Figure 15: The number of workshops in use by the cutlery industry compared to the number of workshops known to have existed in the Riverside area by year.



were comparable with those recorded until the 1860s. Figure 15 shows that it is around this date that the numbers of workshops in use fall from 79 to 43; 54 premises are recorded as no longer being in use, rising to 85 at the end of the century, perhaps as a result of the expansion of large works in the area and the demolition of some smaller premises.

The number of workshops located in the **Park** area expanded from the 1840s onwards, and reached their peak in the 1850s after which the area slowly declined. Like the Western and Hollis Croft districts, the cutlery industry and allied trades used small establishments. One hundred and thirty four addresses relating to small workshops can be found in the rate books (Figure 16). Only five medium and one large works are recorded. The largest were the premises of Martin Hall and Co, manufacturers, silversmiths, electroplaters and cutlers in Broad Street, paying a rate in 1870 of £33-17-6.

Here the cutlery industry predominates, but the small number of workshops in the area meant that it only contained 6.5% of the town's industry. The manufacture of tools was more significant, accounting for 16% of the total tool trade of the town. Once again there appears to be a large discrepancy between the numbers of workshop addresses recorded and those in use. Out of the 144 workshops that had been used by 1891-92, only 21 could be cross referenced between the trade directories and rate books for those years (Figure 17).

It has been noted in all the districts examined in this section that the number of addresses recorded and the number of those in use by the end of the century differ widely. Several factors may have led to this apparent overstocking of workshops. Workshops were not built for any particular trade and were therefore interchangeable between any of the Sheffield industries. Secondly, as outlined in the introduction, trade directories are a notoriously unreliable source⁵⁰ and workshops may have been in use by the trades even when not recorded as such; addresses may have changed as streets were renumbered, making the property number relate to a different building not previously used

⁵⁰ Series of Articles in the Local History Magazine 1994 April (vol.44): Shaw, G. *The evolution and availability of directories* pp14-17; July (vol.45): Shaw, G. And Coles, T. *Methods of compilation and the work of large-scale publishers* pp10-14; Sept. (Vol.46): *Directories as Sources in Local History* pp12-17

Figure 16: The size of workshops in the Park area by year.

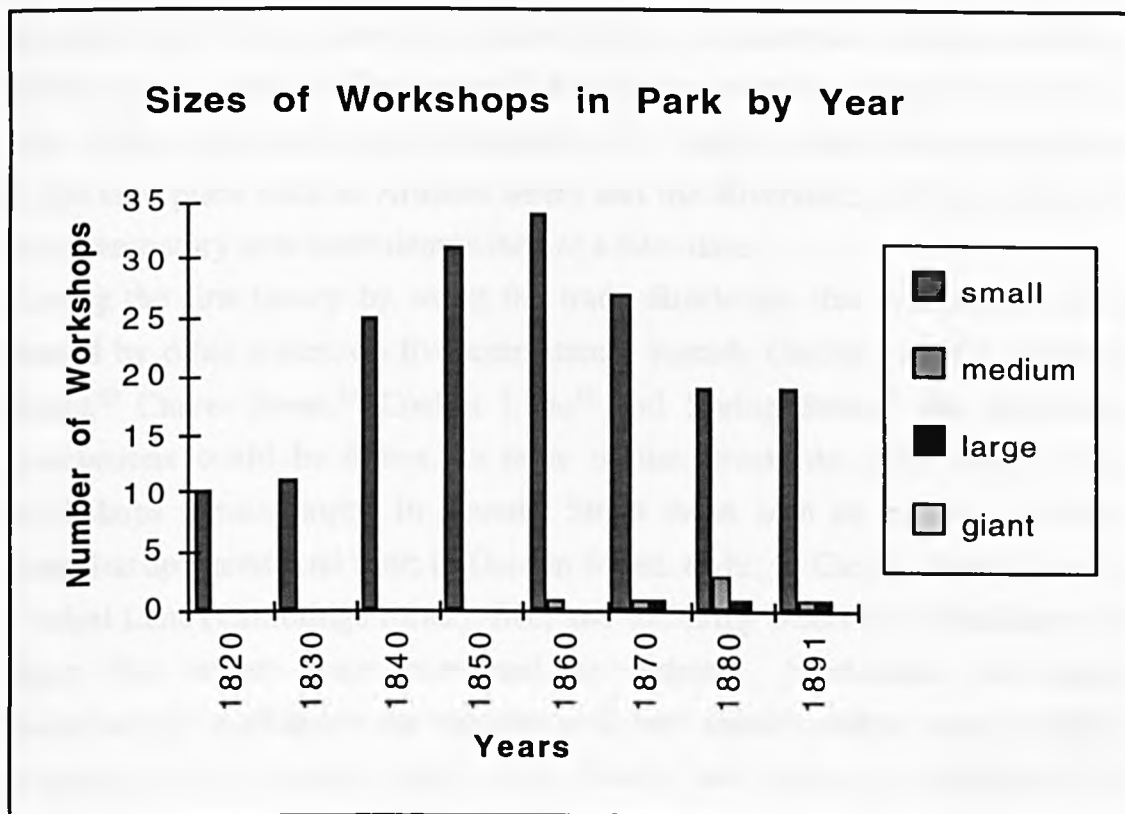
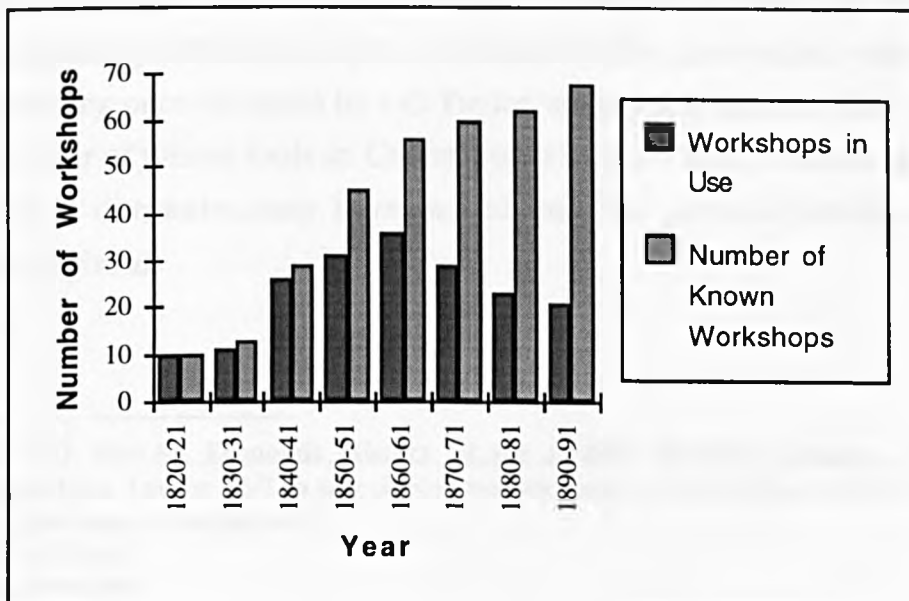


Figure 17: The number of workshops in use in Park compared to the number that are known to have existed, by year.



by the cutlery trades. Another possibility is that the workshops were demolished and replaced by other structures. Powell argues that 'low incomes permitted only flimsy short-lived construction and materials....making building replacements a perennial necessity.'⁵¹ Finally, the number of empty workshops may reflect a movement in the location of the trade to sites where expansion could take place such as Arundel Street and the Riverside; or they may have been temporary structures demolished at a later date.

Testing the first theory by using the trade directories, that workshops were reused by other trades, on five main streets, namely Garden Street,⁵² Arundel Street,⁵³ Carver Street,⁵⁴ Coalpit Lane⁵⁵ and Spring Street⁵⁶ the following conclusions could be drawn. In none of the streets do more than a few workshops remain empty. In Arundel Street those with no known use after they first appeared total four; in Garden Street, eight; in Carver Street, four; in Coalpit Lane (Cambridge Street), five; and in Spring Street six. Workshops in these five streets were converted to lodgings, beerhouses, an organ manufactory, workshops for painters and print makers, tailors, strop makers, surgeons, shoe makers, cabinet case makers and stores for builders and merchants, as well as shops.⁵⁷ This suggests that the workshops were not built with a specific trade in mind and could be usefully adapted to any line of business carried out by Sheffield craftsmen. Equally cutlery firms moved into workshops that had previously been occupied by other trades such as G Newbould, cutlery manufacturer who moved into a building that had once been occupied by J Roberts, a dyer, or William Straw, scale maker, who moved into a building once occupied by a G Taylor, strop manufacturer. George Eliss, manufacturer of joiners tools in Carver Street in the 1860s, from the evidence in the trade directories, may have moved into the previous residence of B Rawlins, registrar.

⁵¹ Powell, C.G. 1980 An Economic History of the British Building Industry 1850-1979 Architectural Press London p6-7. In later chapters the poor quality of the buildings used by the cutlery industry in this area will be discussed.

⁵² Hollis Croft Area

⁵³ Arundel Street Area

⁵⁴ Western District

⁵⁵ Central Area

⁵⁶ Riverside

⁵⁷ In the traditional sense i.e. for the buying of provisions

Did the movement of firms, to and from the areas examined, have any effect on the number of 'redundant' workshops within each district? By extracting data on all those firms which appear to have changed areas during the course of the nineteenth century, the following conclusions can be drawn. In total 118 firms are known to have moved. The areas which showed the greatest loss of firms were the Central, Arundel and Park districts, while the Western and Riverside areas gained the most. Hollis Croft remained reasonably static; firms moved within the area with only minor loss to other districts (Figure 18). That the Riverside area gained the most firms can be explained by the availability of land on which to expand. Of the 23 firms which moved in from elsewhere, a quarter used their transfer to the district to expand. These included Michael Hunter, table knife manufacturer; Spear and Jackson, saw and steel manufacturers; Ibbotson Brothers, steel converters, refiners, merchants and manufacturers of fenders, grates, saws and files, William Brookes and Son, manufacturer of table knives, scissors, snuffers etc. and Unwin and Rodgers, manufacturers of pistol knives, pen and pocket knives, desk and fruit knives and scissors.

The principal reason for movement to the Western area was the increase in rateable values in other areas, especially in the Central area. From 1850 to 1890 the rateable value increased in the Central area by 1324% and the Arundel area by 570% compared to 354% in the Western district. Figure 18 shows substantial losses by these two districts to the Western area. The move to the west from Hollis Croft cannot however be explained by an increase in rateable value, as rates in the latter rose by only 284%. Those that removed from Hollis Croft to the Western district did not belong to a single branch of the cutlery trade, nor did they expand. Their relocation may have been due to personal preference for which there is no historical, geographical or economic explanation. An almost equal number of firms moved from the Western District to the Hollis Croft area.⁵⁸ Only three firms expanded as a result of relocating to the district. These were John Wilson, table, shoe and butchers' knife manufacturer, and Atkinson Brothers, manufacturers of table, butchers', pen and pocket knives, razors, scissors, files and edge tools, both of whom moved from the Arundel Street area and Turner, Naylor and Marples from the Park

⁵⁸12 moved from Hollis Croft to the Western Area, 9 moved from Western to Hollis.

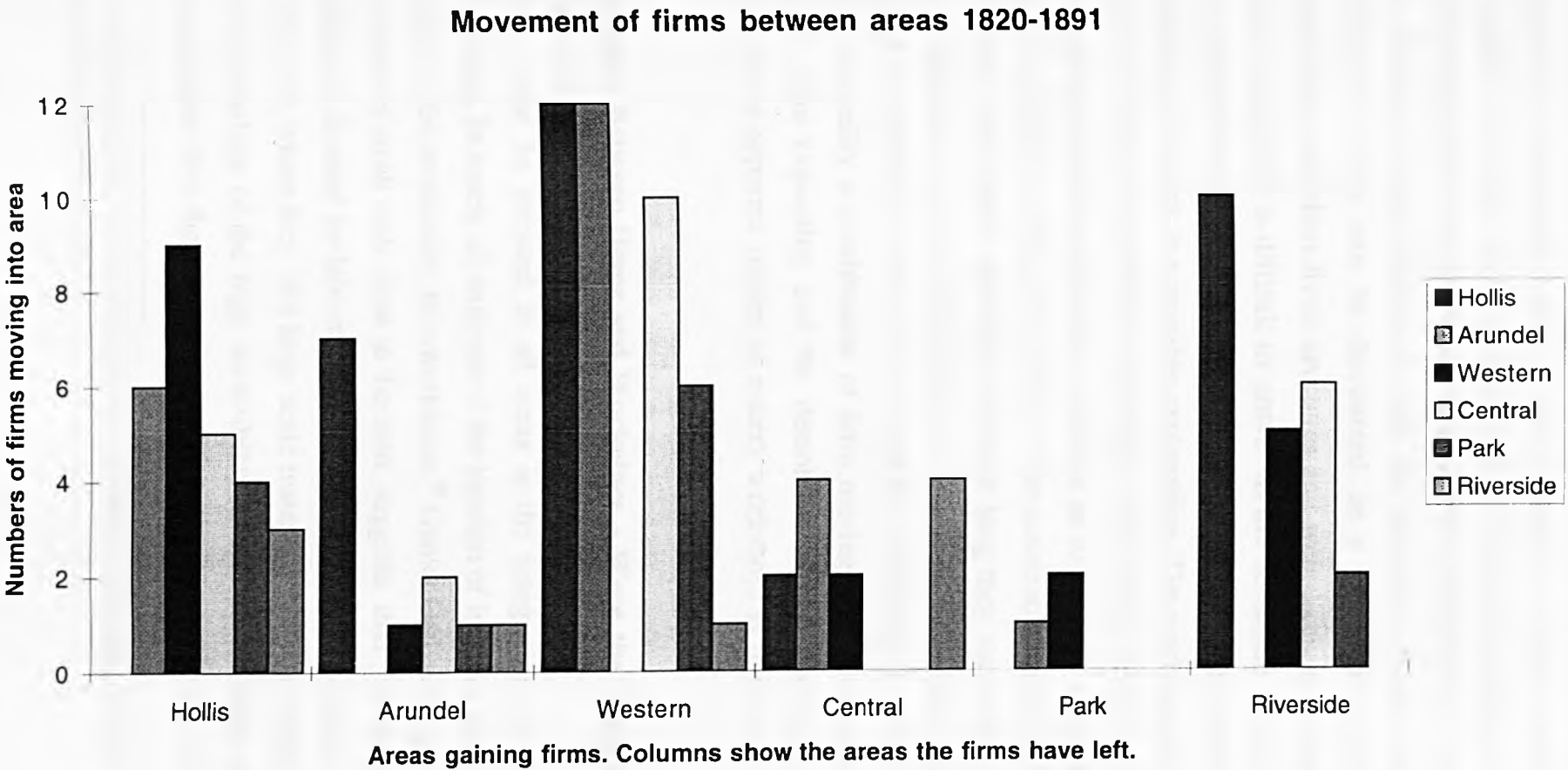


Figure 18: Movement of firms between areas 1820-1891.

District. All increased the rateable value of their works from small to medium between 1870 and 1891.

Although the data confirms that firms did move between areas for a variety of reasons, the numbers involved are unlikely to have contributed to the “surplus” of workshops within each area. The total number of 118 traced as relocating is less than the numbers of vacated workshops in each of the areas, by the end of the century, so with the exception of the Park district, the relocation theory can be discounted as a reasonable explanation. That workshops were short-lived structures and were likely to be demolished after a ten year period is difficult to prove. In the Riverside area some may have been demolished to make way for larger works but in other districts a cycle of replacing old stock is a possible explanation. The workshops vacated by the cutlery trades are therefore most likely to have been reused by other trades, but no satisfactory answer can be found as to why so many buildings were made redundant during the course of the nineteenth century. Every thriving city has some vacant buildings; it is how long they stay empty, and whether their numbers are particularly high in slump periods that is important. This could be established only by assessing the rate books for each rate in every year. In reality a combination of firms moving, other industries taking their place, firms expanding and the demolition of old workshops are likely to explain the apparent surplus of cutlery workshops in the urban landscape.

Distance Between Home and Workplace - Were the Workshops Located Near to the Labour Force?

What must be stressed in all areas is the integration of workshops and dwellings. In nearly all analyses of the location of industry one of the deciding factors is the availability of a workforce.⁵⁹ Gunter Gad, writing of the industrial location of small scale firms in Toronto, suggests that ‘Because of a massive collective demand for labour... spatial clusters were also found in central parts of the city, where they, like large scale material intensive industries, could also take advantage of the high accessibility to labour.’⁶⁰ Palmer and Neaverson also suggest that the presence of a particular industry in a given area is the

⁵⁹ For example Beaver, H. 1936 *The Localisation of Industry* **Geography** 21 p193

⁶⁰ Gad, G. 1994 op cit. p 114

result 'of the complex interaction of a number of factors... Natural resources, particularly the extent and position of raw materials and, secondly, human resources providing the initiative and labour for the exploitation and processing of those raw materials'.⁶¹

Until the nineteenth century the majority of workers in the cutlery trades are likely to have lived very close to the places where they worked. In Hollis Croft for example workshops and houses are to be found in the same courtyards. However as the town expanded to the west, and areas such as Walkley and Crookes were built up, the mixing of workshops and houses became less frequent. Areas such as Walkley in particular were developed by freehold land societies who placed limitations on the types of structures that could be built, and in this way these local societies proved to be more restrictive to the expansion of industry than the larger landlords of the town centre. Better communication routes throughout the city, in particular the tram system, made it easier for the general workforce⁶² to travel further to work.

The 'flood claims' of 1864 provide a unique picture of how far people in the cutlery trades were willing to travel to work, as well as recording the devastation in the Loxley and Don Valleys after the breaking of the Dale Dyke Dam:

'The directors were aware that they could not escape paying compensation because the enabling act of 1853 had contained a protective clause instigated by the local mill owners who were mindful of the collapse in 1852 of the Bilberry Dam at Holmfirth.'⁶³

The details provided include names and addresses of those affected, their occupation and places of work, as well as 'loss of time.' Although those affected mainly worked in the larger factories and tenement works, a picture of how far some of the workforce travelled can be established. (Table 2). This table indicates that the majority of workers who were affected by the flood travelled between a quarter and three quarters of a mile to work in 1864, with nearly a quarter of the workmen travelling between one and two miles,

⁶¹ Palmer, M. and Neaverson, P. 1994 Industry in the Landscape 1700-1900 Routledge London p2

⁶² Grinders who worked at the water-powered sites had always travelled long distances to work.

⁶³ Cass, J. 1989 *The Flood Claims a Post Script to the Sheffield Flood of March 11th and 12th 1864*. Transactions of the Hunter Archaeological Journal vol. 15

Distance to work	Nos. Of workmen	Percentage of Total
<0.25 miles	93	11.06%
0.25-0.50 miles	219	26.04%
0.50-0.75 miles	196	23.31%
0.75-1.00 miles	140	16.65%
1-2 miles	186	22.12%
2+ miles	7	0.83%
Total	841	100%

Table 2: The distance travelled to work. Information extracted from the flood claims of 1864.⁶⁴

mainly from the newly developing residential areas in Crookes, Walkley, Broomhall and Sharrow as well as the expanding Park area to the east.

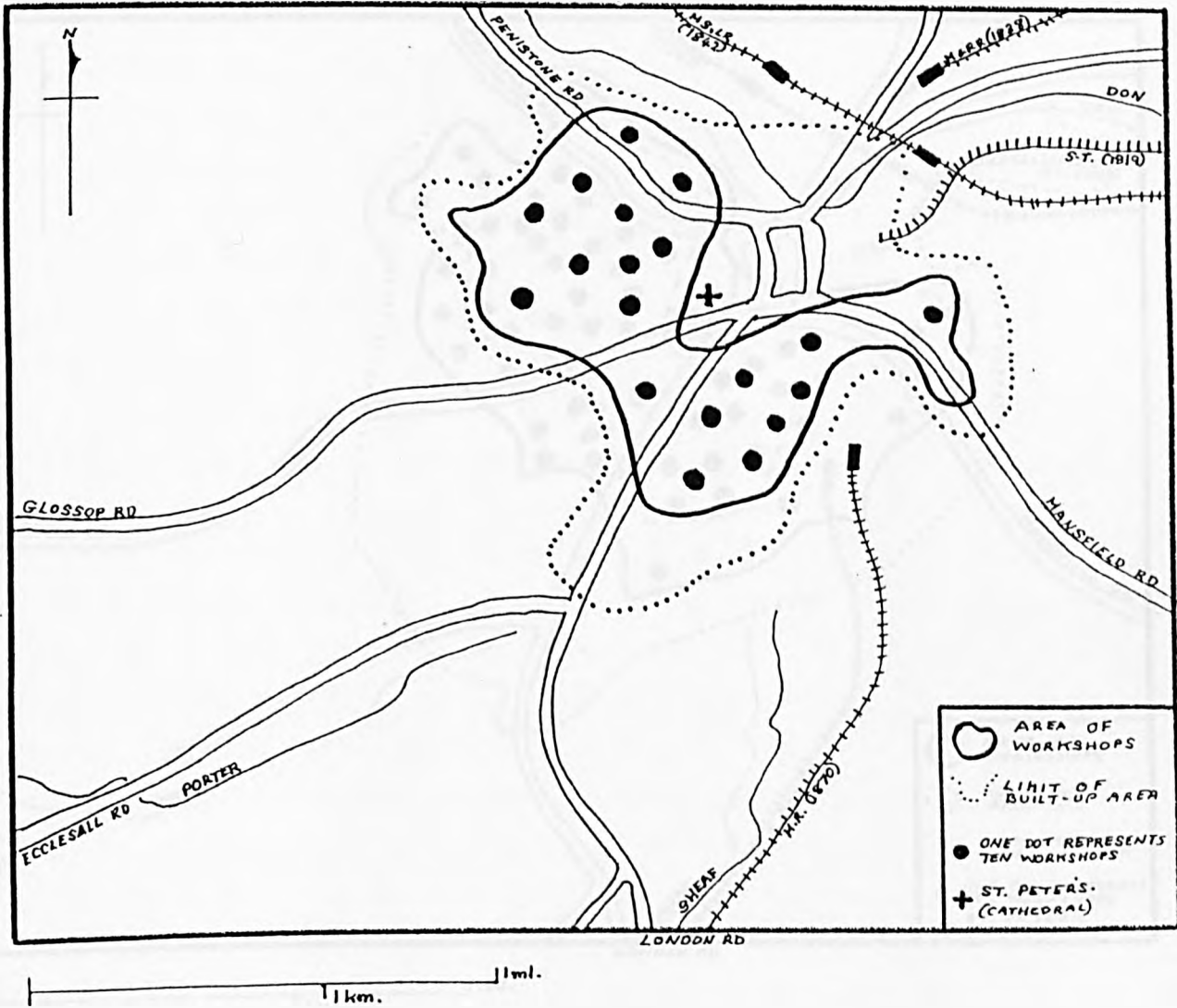
In conclusion, the workshops of the cutlery industry had in most areas reached their peak number by 1850. This corresponds to the fact that few workshops are known to have been located outside the main built up areas of the town in the 1850s (Map 6). Their numbers continued to fluctuate however, although in constantly declining numbers, within this area until the 1940s.

With the exception of grinders who still travelled to sources of water-power, the majority of people in the nineteenth century still lived near to their place of work, sometimes within a few metres. However there was a tendency for new housing to be erected away from mixed residential/industrial areas in suburbs, travelling distances could be as much as two miles or more in 1864 although most workers lived within a mile of their place of employment.

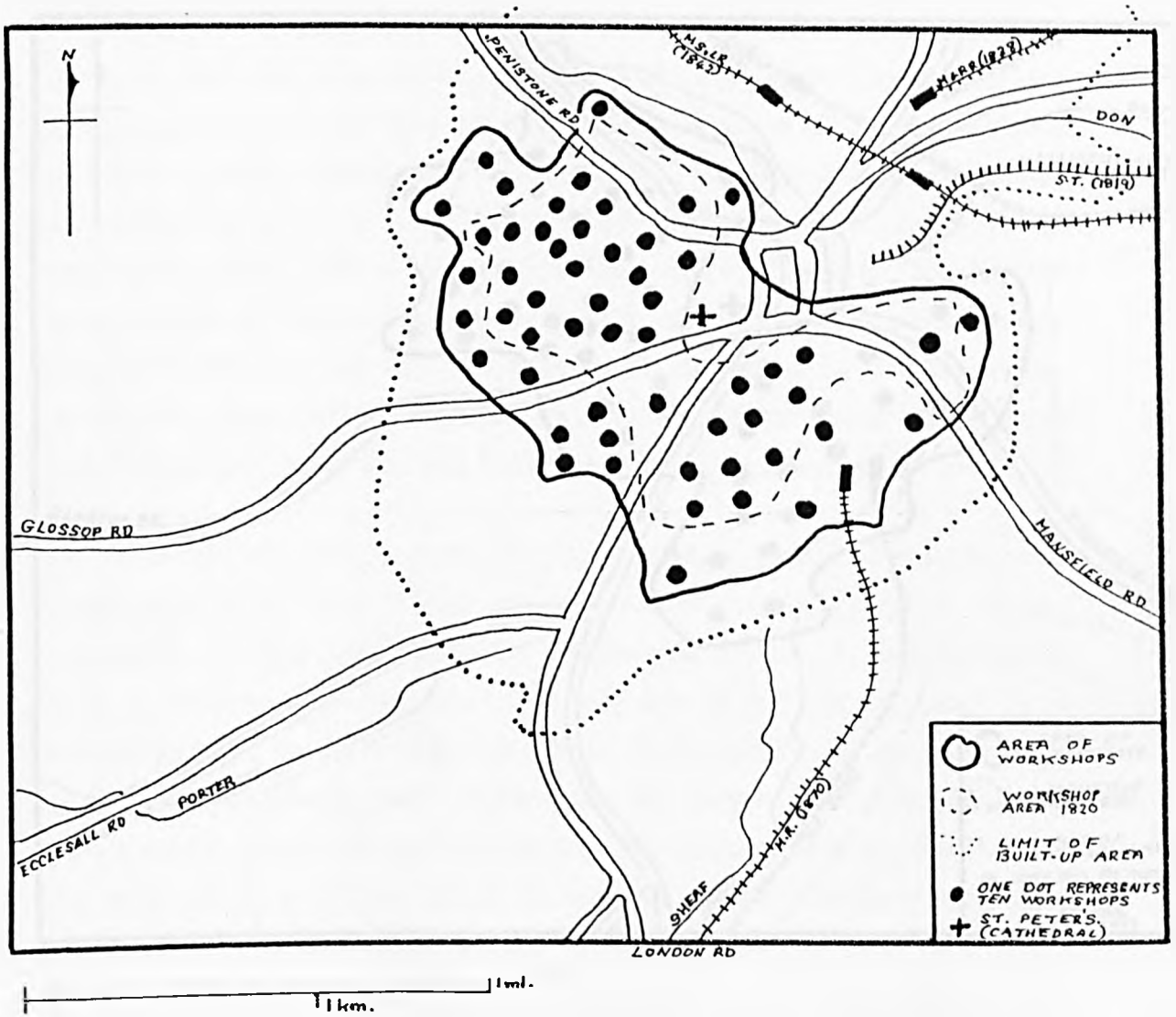
In the 20th century the characteristics of the districts examined here were changed. The bombing of the Arundel area during the Second World War; the slum clearances of the 1950s in the Hollis Croft district; and the decline of the other areas considered here as industrial centres mean that very few of the small-scale workshops that once formed the backbone of the cutlery industry survive in the 1990s. Investigation is vital before the few remaining disappear completely.

⁶⁴ CA71-78 (Sheffield Archives) Sheffield Libraries and Information Service

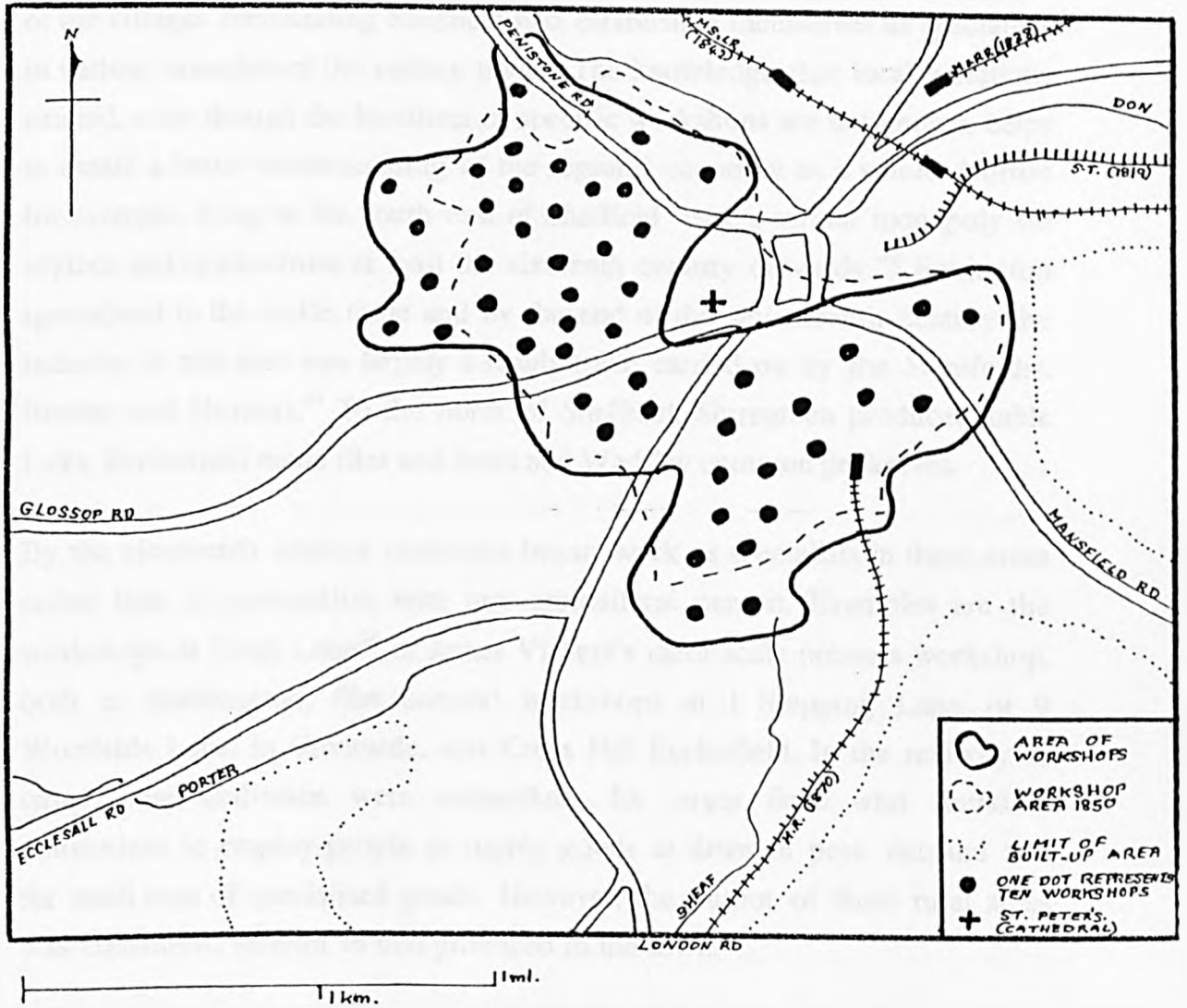
Map 6a: Sheffield 1820: The area of the workshops and extent of the built up area.



Map 6b: Sheffield's expansion between 1820 and 1850. The area of the workshops and the extent of the built up area.



Map 6c: Sheffield expansion between 1850 and 1890. The area of the workshops and the extent of the built up area. Note that the area of workshops has expanded little beyond the limit of the 1850 built up area.



Workshops in the Villages

The hearth tax returns for Lady Day 1672 show that only 38% of metalworking craftsmen resided in the township of Sheffield,⁶⁵ suggesting that rural areas played an important role in the industry at this time. By 1750 many of the villages surrounding Sheffield had established themselves as specialists in various branches of the cutlery trades. The knowledge that local variations existed, even though the locations of specific workshops are not known, helps to create a better understanding of the regional economy as a whole. Norton for example, lying to the south east of Sheffield 'had a virtual monopoly on scythes and sickles from at least the sixteenth century onwards.'⁶⁶ Eckington specialised in the sickle trade and by the end of the seventeenth century the industry in this area was largely a family trade carried on by the Staniforths, Booths and Huttons.⁶⁷ To the north of Sheffield, Shiregreen produced table forks, Ecclesfield made files and forks and Wadsley common penknives.

By the nineteenth century craftsmen began work as specialists in these areas rather than in connection with any agricultural pursuit. Examples are the workshops at Nook Lane⁶⁸, or James Vickers's razor scale pressers workshop, both at Stannington; files cutters' workshops at 1 Stepping Lane, or 9 Woodside Lane, in Grenoside, and Cross Hill, Ecclesfield. In the majority of cases these craftsmen were outworkers for larger firms who found it convenient to employ people to supply goods at times of peak demand and for small runs of specialised goods. However, the output of these rural areas was considered inferior to that produced in the town.⁶⁹

The detailed records which exist for the town in the nineteenth century, in the form of rate books, do not exist for these rural areas. Census material, as in urban areas, does not provide information as to structures, and is misleading in the numbers of people portrayed as working in the industry. Many of those in villages who give their occupation in the cutlery industry would have worked in the town or at the nearest grinding wheels in the valleys. In Grenoside, for

⁶⁵ Hey, D. 1972 op cit. p 11

⁶⁶ *ibid.* p 10.

⁶⁷ Hey, D. 1994 Lecture given at the Cutlers' Hall on *Scythesmiths and Sicklesmiths: the origin of local crafts.*

⁶⁸ See Appendix for a list of grid references

⁶⁹ Pollard, S. 1959 op cit. p61

example, in 1871 there were 116 people who gave an occupation related to the cutlery trades. These included 98 persons connected with the file trade, one pocket knife maker, seven spring knife makers, two fork makers, three cutlers, two butcher's steel manufacturers, and three edge tool manufacturers.⁷⁰ In comparison, the trade directory for 1879 lists just two file cutters working in the village, although this is probably an underestimate. These were Edmund Newton (jun.) file cutter at Greno Cottages, and William Henry Tingle, steel and file manufacturer and farmer at Sycamore Lodge. The other three metal workers listed were shuttle tip makers. In 1891 the census records 102 people working in the cutlery trades, which included 72 file cutters, three spring knife makers, one butcher's steel manufacturer, three cutlers, one tool maker, two grinders, one silversmith and one warehouse assistant.

Throughout the century up to 33 villages are listed in the trade directories as having connections with the cutlery trades (Table 3 & Map 7). However, just the name of the craftsman is usually given and when there is an address it is not certain if this relates to his home address or place of business. The trade directories do suggest regional variations in production as shown by Map 7. Villages to the north of Sheffield specialised in fork and file manufacture while those to the south made sickles and scythes. Nearly all the villages lay near river valleys, and could take advantage of water power to grind their products as well as sources of charcoal and sandstone.

From the information in the trade directories it is possible to see that in some villages the majority of the workers associated with the cutlery trades worked in the 'wheels' in the valleys, as at Ecclesfield where the majority of the fork makers worked at Oliver's Wheel. A large number would also have been outworkers, although it is difficult to trace the firms that they worked for.

Documents relating to specific firms usually only give details of names and the amount paid, rather than the quantity of the product produced and the place where it was made. Oral evidence is therefore the key to identifying the location of outworkers but for the early twentieth century rather than the

⁷⁰ The author is most grateful to the Grenoside Local History Group led by Sam Sykes whose indexing of the Grenoside census meant that those persons involved in the cutlery industry and allied trades were easy to find.

Village	Cutlery ⁷¹	File makers	Fork makers	Scythe and Sickle makers	Scissor makers	Tool makers	Scale pressers
Attercliffe	2	1			1	1	4
Brightholmelee	4 ⁷²	7 ⁷³					
Brightside Bierlow	4		22 ⁷⁴				
Catcliffe							1
Coal Aston						1	
Darnall	7				1		
Dore				4			
Dronfield	2			11		5	
Ecclesall Bierlow	10 ⁷⁵	1 ⁷⁶				4	
Ecclesfield	2	19 ⁷⁷	11 ⁷⁸				
Eckington	1			1		1	
Grenoside	1	3	12				
Hackenthorpe				2			
Heeley	1						1
Holmesfield				2			
Kimberworth			16 ⁷⁹				
Midhope and Bolsterstone	1 ⁸⁰						
Mosbrough	2			5			
Nether Hallam ⁸¹	15	1					
Norton	2			14 ⁸²		3	
Owlerton	4						
Shiregreen	1	1	32				
Stannington	26 ⁸³	1	1			2	8 ⁸⁴
Totley		1		1			
Treeton	1						
Troway				19 ⁸⁵			
Ughill and Dungworth	7						
Unstone		1					
Upper Hallam ⁸⁶	5	3	1		3		
Wadsley	29	2 ⁸⁷					1
Wincobank			7				
Woodhouse	1						
Worrall		2					1 ⁸⁸

Table 3: Shows the villages listed in the White's 1841 General Directory of Sheffield and the number of craftsmen in each trade.

⁷¹ Cutlery includes knives of all varieties, and razors, shears

⁷² Only one works at Brightholmelee, two work at Wharncliffe Side and one at Oughtibridge

⁷³ Two work at Oughtibridge and one at Gate

⁷⁴ In Grimesthorpe

⁷⁵ Working at Millhouses, Little Common, Dobbing Hill, Abbeydale, Park Head, Button Hill and Bents Green.

⁷⁶ At Whirlow

⁷⁷ Including three at Ecclesfield Wheel, two at Hirst and one at Whitley.

⁷⁸ Mainly working at Oliver Wheel

⁷⁹ All reside at Blackburn

⁸⁰ Works at Fairest

⁸¹ Includes Crookes, Tapton and Walkley

⁸² Working at Woodseats, Bradway, Norton Hammer and Little London Works.

⁸³ Including 21 pocket knife makers, one spring knife maker and four razor makers

⁸⁴ Razor scales

⁸⁵ Of these four work at Ford, one at Ridgeway and one at Bramley

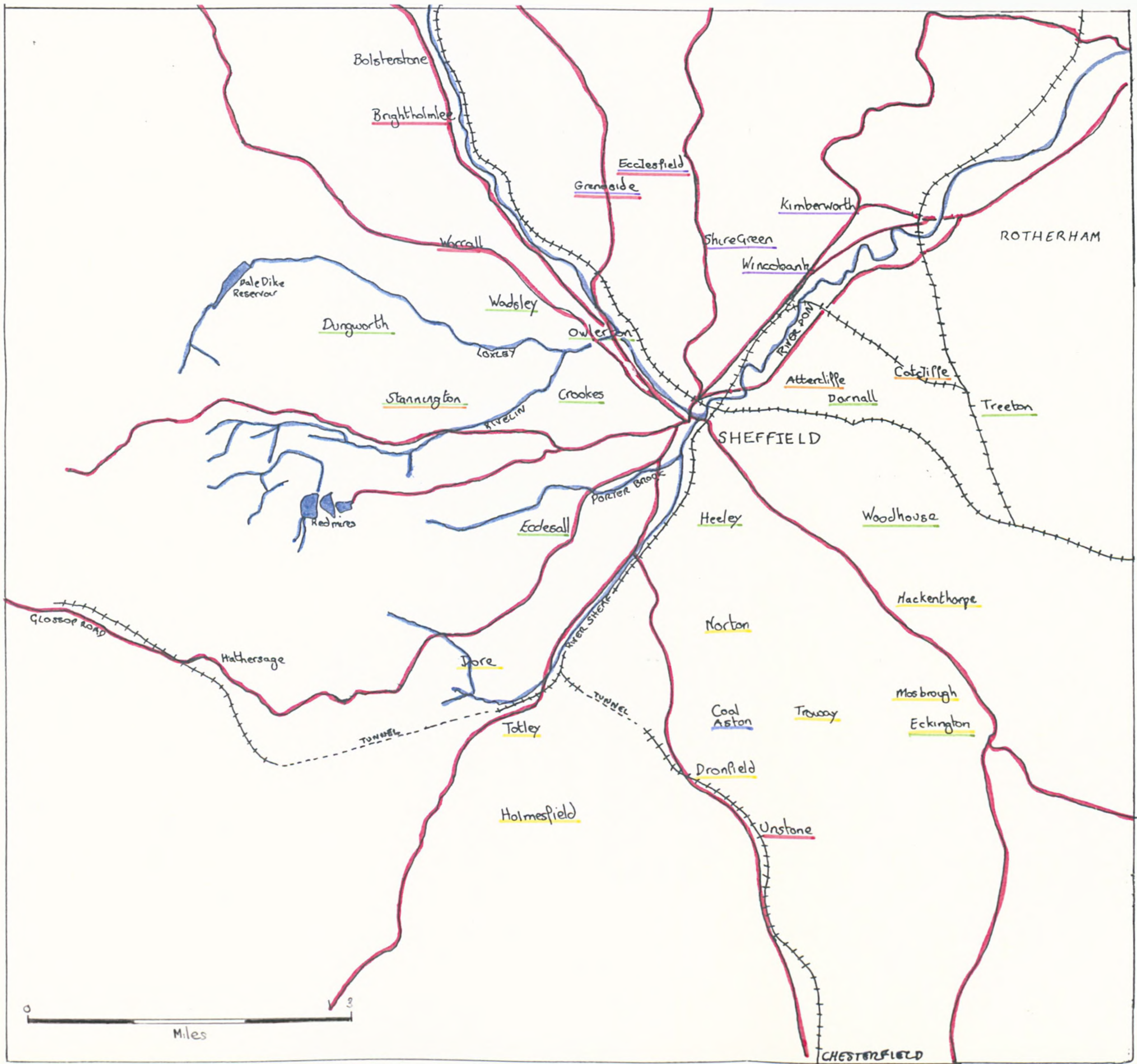
⁸⁶ Covers Ranmoor, Carsick Hill, Crosspool, Nether Green, and Sandygate.

⁸⁷ One of which works at Wisewood

⁸⁸ in Holdsworth

Map 7: The villages where cutlery was produced.

Products of Villages: Scythes and Sickles — Forks — Files —
 Knives — Scales and Hafts — Tools



nineteenth. Mr. Ellison at Grenoside remembers his father, a file cutter, and Mr Day, a neighbour, who was a small cutler at Sandygate taking finished goods to town on a Saturday and collecting the 'blanks'⁸⁹ for the following week's work. The owner at Crown Works in Ecclesfield, a file manufactory, remembers women of the village cutting files for larger Sheffield firms in rooms in their own homes known as 'bottom shops.'⁹⁰ At Stannington, in Dennis Smith's interviews in the 1970s with Collin Goodison, references were made to a workshop in Nook Lane where the three Wragg Brothers worked for Wostenholme's, while two others worked for a different firm. Those who worked at the larger Alpha Works, employing 24 people in 1914, were making knives for the Spanish and Irish markets of Harrison Brothers and Howson, Thomas Turner, and Humphries.

Why did outworking continue for so long? Large manufacturers such as those mentioned above found it convenient, as they did not have to find workshop accommodation, nor did they have to provide heating or light. This was in common with many other sweated trades of the period, such as the textile and boot and shoe industries.⁹¹ Those who remained outworkers did so largely through choice and in some cases the whole family was employed. Mr Ellison's father for example employed his sisters as file cutters and packers. At Crown Works, the present owner's brothers were employed as hardeners and forgers as well as file cutters, while his sisters were employed in the warehouse. Where work in the trades was carried out to supplement the family's income, it provided a welcome boost in the winter months when no work could be done around the farm. It also provided employment to family members who were not needed to, or could not, work on the land. So long as there was a labour supply and prices remained competitive 'manufacturers had little incentive to turn to alternative means of production and every encouragement to go on relying on a 'system' which worked so obviously to their advantage.'⁹²

⁸⁹ Rough unworked stamped or forged metal in the shape of any article. (Dyson, R. 1979 reprint of 1936 ed. A Glossary of Old Sheffield trade words and dialect. University Printing Unit Sheffield p11)

⁹⁰ Informal interview carried out in February 1995. The 'bottom shop' was so called because it was on the ground floor and was probably the kitchen. He noted that it was the men that collected the work for their wives every Saturday.

⁹¹ Bythell, D. 1987 The Sweated Trades Batsford Academic, London p 181

⁹² *ibid.* P 177

In the last decade of the twentieth century little evidence remains in the villages of the industries which were once carried on there. In Grenoside just four workshops have been identified as having been associated with the industry, in addition to two sites associated with the production of crucible steel. In Ecclesfield only three workshops were identified, with a fourth site which has possible associations with the file cutting trade. In Stannington three sites have been surveyed out of a total of five workshops identified, and workshops have also been identified in Dungworth and Storrs and at Syke Bottom (Figure 19).⁹³ One fork maker's workshop survives at Shire Green and to the south scythe and sickle works survive at Norton, Birley Hay and Ford (Figure 20).

Other industries

The landscape of the cutlery industry, from the evidence above, can be portrayed as one cluttered with mainly small workshops in the urban areas with some dispersal of processes such as grinding and by the end of the nineteenth century forging along the river valleys. However the industry needed materials such as steel for blades and horn for handles. As the cutlery industry grew it attracted and promoted the growth of these trades within the region. This section looks at where these industries were located in relation to the cutlery industry and questions whether or not the same buildings that the cutlery industry were used by the associated trades.

Steel

From 1624 all those trades governed by the Cutlers' Company had to have a steel edge and thus the production of steel was of vital importance to the cutlery industry. Some of the earliest known steel makers in the area were the Fells and their partners, who had works at 'Chapelton, Wadsley, Attercliffe, Roche Abbey and Staveley.'⁹⁴ Other steel making facilities can also be identified at Richmond, Ballifield, Darnall, Rotherham and in some of the villages to the south east of Sheffield. In 1720 Alstromer noted that there were two steel furnaces in Sheffield, one run by Shore and the other by a Mr

⁹³ See list of sites.

⁹⁴ Barraclough, K.C. 1984 Steel making before Bessemer: Volume 1 Blister Steel the Birth of an Industry The Metals Society London p 70

Figure 19: Syke Farm, Dungworth (SK288894). Note the Smithy (A1) attached to the barn and the stable. It is also possible to see the farmhouse (B2) and the pig sty (C3).



Figure 20: Scythe Works at Ford. The working complex has now been converted to domestic dwellings.



Perkins or Parkin and two other furnaces situated two or three miles from the town which converted about six tons in one 'heat'.⁹⁵ Two cementation furnaces are also shown on Oughtibridge's illustration of the town in 1737 (Figure 21).

In 1742 Benjamin Huntsman developed the crucible method of steel production. Before Huntsman's invention, steel made by the cementation process was insufficiently homogenous, with carbon concentrated near the surface of the bar, and with concentrations of slag making for uneven blade edges. To minimise the defects, bars of blister steel were forged together to make *shear steel* or by repeating the process *double shear steel*. Huntsman, a watch maker at Handsworth⁹⁶, wanted a more uniform steel for watch springs. He developed a simple method by which bars of blister steel were put in a crucible and heated to melting point; any slag was skimmed off, and the liquid steel was poured into a mould to set as an ingot.⁹⁷ Samuel Walker was one of the first to make crucible steel commercially in the Sheffield region. Originally from Grenoside, he moved to Masbrough in 1746. The Tingle family took over Walkers' Grenoside buildings. The remains of the ash pits in a cellar beneath a crucible furnace, possibly belonging to the Tingles, are still visible under a garage in Back Lane (Figure 22).

The cutlery and steel industries continued to grow rapidly in the second half of the century. Even the Cutlers' Company entered the steel making business between 1759 and 1772, setting up a furnace in Scotland Street using Swedish iron. The aim of the business was:

'...that the steel shall be disposed of amongst members of the Corporation equally and impartially at the rate or price directed which rate or price shall be if possible something below the common market and yet to bring a gain to the Company something more than equal to answer the expenses of the Trust and the Interest of the Capital Stock or fund appropriate or set apart to that end.'⁹⁸

However it was not until the last quarter of the century that other steel manufacturers are identified in the trade directories and even then the scale of their business cannot be determined (Table 4). Foreign visitors to the town,

⁹⁵ Barraclough, K.C. 1984 op cit. p 77. Note Barraclough suggest that the two furnaces mentioned may have been at Ballifield and Attercliffe.

⁹⁶ Allison, A. 1946 *Crucible Steel Iron and Steel* April p 135

⁹⁷ Smithurst, P. 1987 *The Cutlery Industry* Shire Aylesbury p 6

⁹⁸ Extract from the minutes of a meeting of the Master, Warden and Searchers of the Cutlers' Company held at the Cutlers' Hall Sheffield. Quoted in Barraclough K.C. 1984 op cit. p 81

Figure 21: Thomas Oughtibridge's illustration of Sheffield 1737 (cementation furnaces coloured red by author).

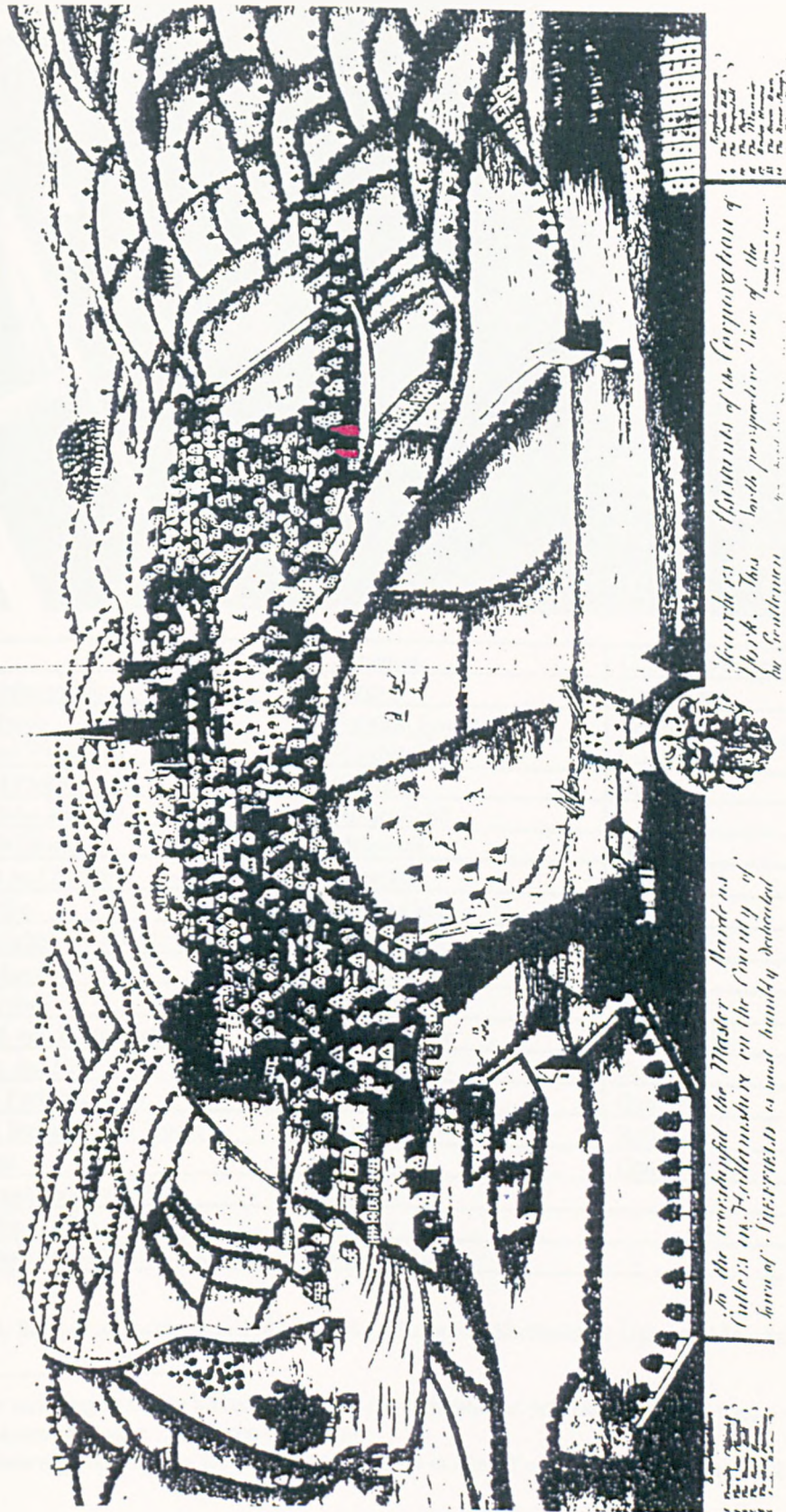


Figure 22: Cellar beneath a five-hole crucible furnace that may have belonged to the Tingles, in Back Lane, Grenoside. (Note the Ash pits at A 1-5)



Name	Location	Converter/Refiner ⁹⁹
Brookes John and Son	Fargate	Converters
Gehrwin Jacob	Paradise Square	Converter
Greaves and Woodhead	Norfolk Street	Converter
Hague and Parkin	Gibraltar	Refiner
Harrison John and Son	Holles Croft	
Houlden William	Millsands	Refiner
Huntsman and Asline	Attercliffe	Refiner
Kenyon John	Holles Croft	Converter
Lostus, Brightmore and Co	Towhead Cross	Converter
Love and Spear	New Street	Refiner
Marshall John	Millsands	
Roebuck B and B jun. and Fenton	Church Lane	Converters
Sauer Eyre and Co	Union Street	Converter
Staniforth Parkin and Co	Sycamore Street	Converter
Townrow, Burdekin and Tingle	Townhead Well	Refiner
Turner John	Hartshead	Converter
Walker Booth and Crawshaw	Masbro'	
Walker John and Co	Wicker	
Younge Sharrow and Whitelock	High Street	

Table 4: Steel manufacturers in 1787 from A Directory of Sheffield by Gales and Martin¹⁰⁰

⁹⁹ A converter turns pig iron into blister steel using the cementation process. A Refiner uses a crucible to refine the blister steel after it has been converted.

¹⁰⁰ Gales and Martin Reprinted by De Capo Press in 1969 in New York. Original published in London in 1787.

such as Robsahm and Jars in 1761 and 1766 respectively, mention the use of relatively small single-chest cementation furnaces.¹⁰¹ In general these eighteenth-century steel manufacturers located themselves in areas where the cutlery industry had developed, for example in Hollis Croft, Millsands and Norfolk Street (Map 8).

The steel industry continued to expand throughout the nineteenth century, adding a completely new 'industrial sector on the east'¹⁰² side of the town. Some steel works however remained within the existing industrial areas, as Maps 4 & 5 show. Those firms who wanted to expand looked for sites on the large areas of flat land with good transport facilities in the lower Don Valley. In 1810 Barraclough records nine steel producing firms and 21 furnaces in operation in the Sheffield region. The largest producers were the Walkers at Masbrough (Rotherham), a possible reflection of the works' close connection to the canal.¹⁰³ There were 56 cementation furnaces in Sheffield in 1835; by 1863 this had increased to 205 furnaces, producing 78,270 tons of blister steel (Table 5).

Date	Furnaces	Tons of Steel
1835	56	
1842	97	16250
1846	105	26250
1851	145	35000
1853	160	40000
1856	606	51000
1863	205	78270

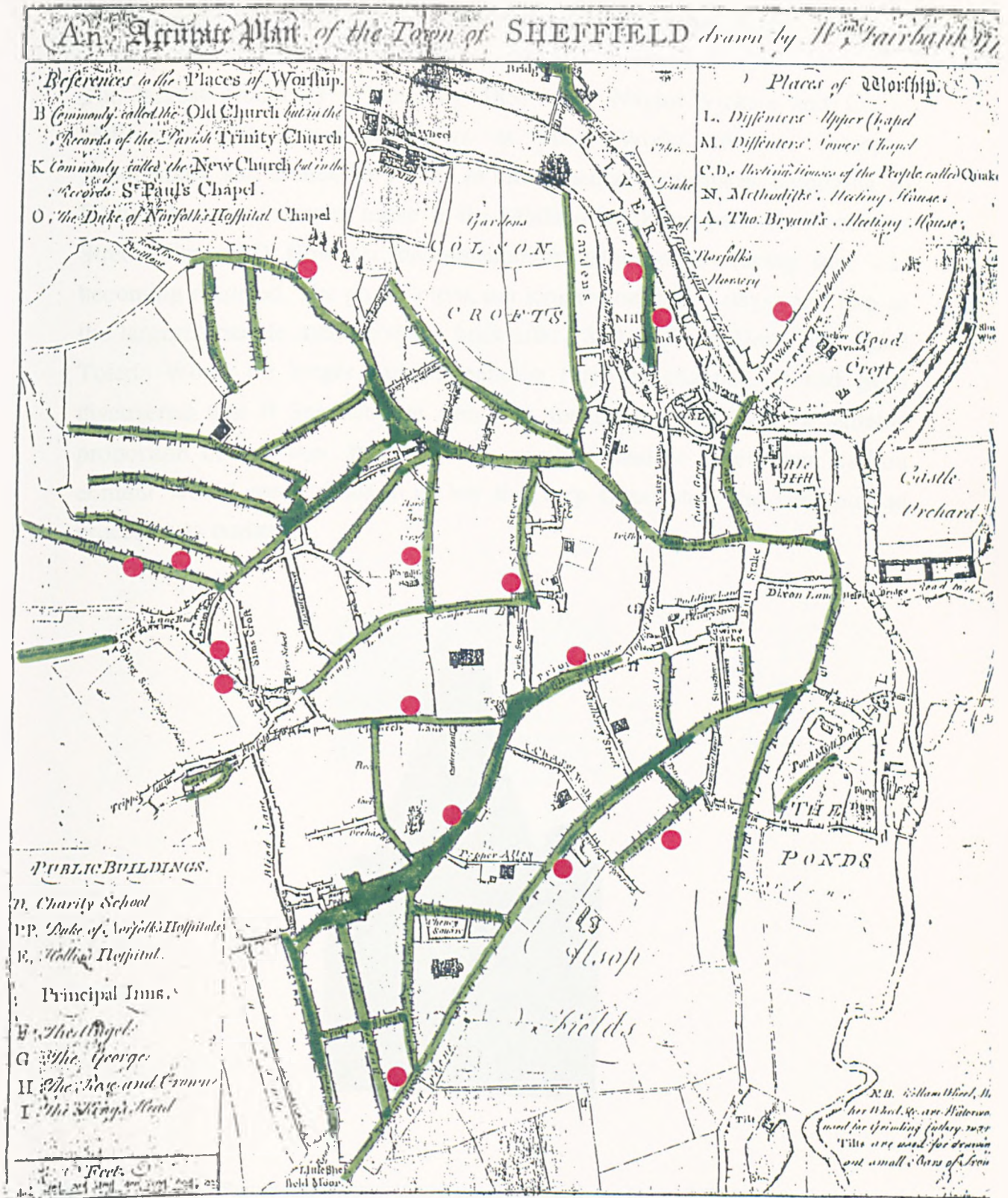
Table 5: The rapid increases in the number of cementation furnaces and the total amount of blister steel produced in the first half of the nineteenth century (After Barraclough K.C. 1984; 105).

¹⁰¹ Barraclough K.C. 1984 op cit. p 91

¹⁰² Linton, M. 1956 op cit. p234

¹⁰³ Barraclough, K.C. 1984 op cit. p103-4

Map 8: The location of the eighteenth century steel manufacturers (red dots) in relation to the cutlery industry (marked in green).



The first large scale integrated steel and cutlery works, Sheaf Works, was built by William Greaves adjacent to the canal basin just four years after the basin was opened. Gatty reported that when the works became fully operational in 1826 'it gave a new impulse to the system of our local manufacture.'¹⁰⁴

The largest producers of steel by 1851 were Naylor Vickers and Co at Millsands, Turton and Matthews at Sheaf Works, William Jessop's, Sanderson's and Doncaster's. One of the cementation furnaces belonging to Daniel Doncaster remains today in the Midland Bank car park on Doncaster Street (Figure 23). However the cementation method of producing steel was becoming outdated. The process took too long (more than 8 days) and two of the largest crucible melting shops built after 1850 at River Don Works and Toledo Works no longer had cementation furnaces attached. It had been discovered that if Swedish Bar iron was melted together with a suitable proportion of cast iron, directly in the crucible, steel of appropriate carbon content would result. Thus in all but the very finest steel the cementation process was omitted.



Figure 23: Cementation Furnace, Doncaster Street (1995)

¹⁰⁴ Tweedale, G. 1996 op cit. p 29

Increased use of crucible steel meant that by 1842 each furnace was usually constructed with rectangular furnace holes which held two crucibles each of approximately 28-36lbs (Figure 24). In 1858 Siemens' development of the gas fired furnace meant that furnaces could hold up to 30 crucibles in each hole as there was no problem over the maintenance of heat. The first furnace of this type in Sheffield is believed to have been used by Marriott and Atkinson and after 1868 it was used by the River Don Works of Naylor, Vickers and Company.¹⁰⁵ Sandersons installed one in 1872 and William Jessop in 1897. Like all other innovations, Sheffield was slow to recognise the advantages of such a system and so it was not as widely adopted as in America.



Figure 24: Crucible Steel manufacture in the Nineteenth Century in Sheffield.
(Sheffield Local Studies Library)

Steel production nearing the scale in which it is carried out in the twentieth century was made possible by the development of the Bessemer converter from 1856 and Siemens' Open Hearth method by the end of the century. However the steel produced by these processes was not used to any great

¹⁰⁵ Barraclough, K.C.1990 Steel making 1850-1900 The Institute of Metals p24

extent in the cutlery trades but more as a replacement for wrought iron in railway rails, boilers, springs, railway tyres, gun forgings and shells.¹⁰⁶

Tweedale suggests that some steel manufacturers specialised in cutlery steel, in particular William Jessop and Sons, S&C Wardlow and Kayser, Ellison and Co. In the later nineteenth century George Wostenholm, one of the largest knife producers in the city, often brought steel from Thomas Firth. Some cutlery firms produced their own steel such as Thomas Turner at Suffolk Works and Joseph Rodgers eventually made its own crucible steel¹⁰⁷ at Norfolk Works.

Analysis of the ratebooks for the nineteenth century shows that 134 other firms also produced their own steel on a small scale. Of these 38% were located in the Riverside area, 27% in the Hollis Croft area, 17% in the Western area, 13% in the Arundel area and 3% in the Central and Park areas. The majority of firms only had one cementation furnace and would probably have resembled the building depicted in an illustration of Holly Street (Figure 25).

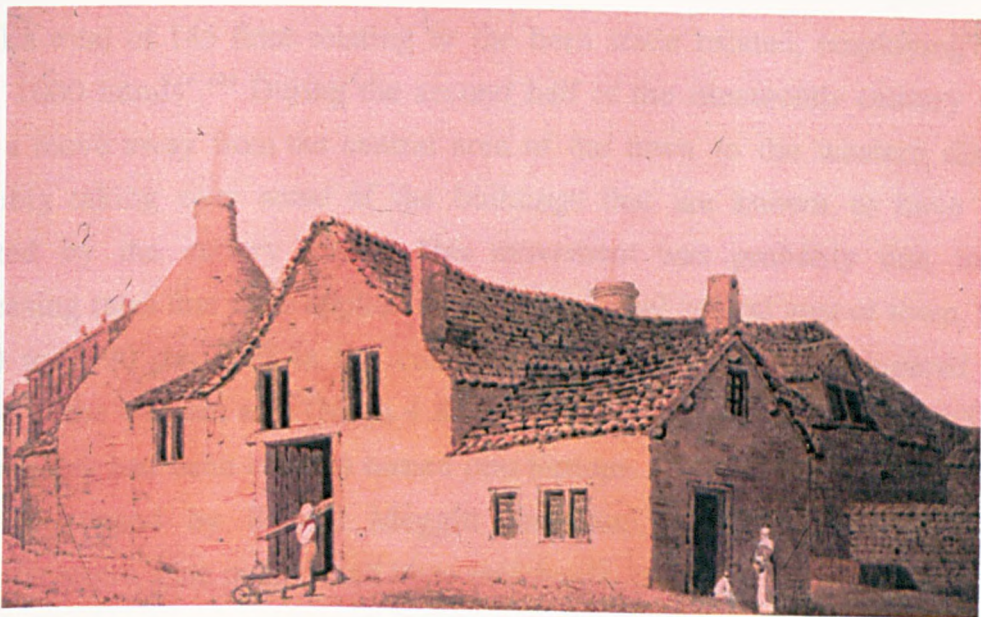


Figure 25: Illustration of a steel furnace c1802, Holly Street by Wm Botham (Kelham Island Museum K1929.96)

¹⁰⁶ Simons, E. and Gregory, E. 1940 Steel making simply explained Pitman and Sons Ltd London p74 and p108

¹⁰⁷ Tweedale, G. 1996 op cit. p21

The largest firms, not surprisingly, were located in the Riverside area and included George Barnsley and Son, W&S Butcher, Wheatman and Smith, S Osborn and Son, J Bedford and Son and William Brookes and Son. The smaller firms, found in all six areas, rarely described themselves as steel producers in the trade directories. The 46 firms that did were either refiners only or converters and refiners emphasising that by the nineteenth century crucible steel was used far more within the cutlery trades than blister steel. Today little evidence remains for these small scale furnaces, as like the workshops which they serviced they have been demolished.

The Horn Industry

The provision of horn and bone developed as a response to the demand for handles and scales. Although the horn industry is known to have existed at least since the seventeenth century it was not until the beginning of the nineteenth century that the trade experienced a rapid growth. The trade was centred in the heart of Sheffield, especially in areas such as the High Street, Change Alley, Fargate, Queen Street, Barker's Pool and Paradise Square.¹⁰⁸ By 1850 a total of 145 firms relating to the horn trade existed, employing 'well over 1000 hands'.¹⁰⁹ During the second half of the nineteenth century there was a move away from the central area of the town to the western districts possibly taking over some of the buildings that are known to have been located by the cutlery trades. This movement was probably due to the increasing rates that were applied to the commercial central area of town. From 1850 to 1890 the rates in the central area rose by 1324% compared with 354% in the western area (Maps 4 & 5). Any horn or bone that remained after the handles had been cut was turned into buttons. On Effingham Road a bone mill once used by Samuel Meggitt and Son, bone and wood button manufacturers, glue makers and bone merchants, still survives (SK370880).¹¹⁰ Sheffield also became one of the largest importers of ivory. The Cutlers' Company reflects this by including an elephant in its crest, which suggests that ivory had been used by the cutlery industry at least since the 1620s.

¹⁰⁸ Taylor, W. 1927 The Sheffield Horn Trade JW Northend Ltd Sheffield p 6

¹⁰⁹ *ibid.* p8.

¹¹⁰ South Yorkshire Industrial History Society 1995 A Guide to the Industrial History of South Yorkshire edited by Bayliss, D. printed by the Association for Industrial Archaeology Redruth.

Records from the seventeenth century indicate that Rodger Barber of Eckington, cutler, had a quantity of Olivant or elephant ivory in his smithy.¹¹¹ In 1878 the firm of Joseph Rodgers alone used 26 tons of ivory for handles and scales. Pearl, beechwood, rosewood and ebony were also imported for handles, from India, South America and Africa.¹¹²

Printing and Packing

Firms' catalogues needed to be regularly updated and printed, and the products needed labelling after they had been packaged in papers specially produced by other Sheffield firms. Schmoller recorded 29 paper mills that existed in the Sheffield area between the seventeenth and twentieth centuries, such as Olive Wheel on the Loxley, rebuilt as a paper mill by John and Abraham Webster in 1832.¹¹³

Paper mills were located in the river valleys adjacent to the cutlery grinding wheels. Wherever possible they were located at the tops of the valleys, where the water was cleaner. During the nineteenth century, some of the grinding wheels on the Rivelin and Loxley were converted to paper mills, perhaps reflecting the slow movement away from water to steam power by the grinding trades during this period. In 1841 five paper makers and three dealers are listed in the trade directory (Table 6) Sheffield firms specialised in the production of rope paper which was acid free and therefore suitable for the packaging of iron and steel blades. Several advertisements for paper-making firms carried details of their products produced for the cutlery trades. For example Charles Marsden and Sons Ltd of Rivelin Paper Mills called the attention of:

'All manufacturers of Cutlery and Bright Steel Goods to their Pure Rope Papers made specially for the Sheffield Trades, A large stock of glazed and unglazed rope papers always on hand, suitable for cutlery, edge tools, saws, files, electroplate and every description of Hardware.'¹¹⁴

¹¹¹ Hey, D. 1990 *The origins and growth of the Hallamshire Cutlery and Allied Trades* **English Rural Society: Essays in Honour of Joan Thirsk** edited by Chartres and Hey Cambridge University Press p356

¹¹² Grayson, R. and Hawley, K. 1995 **Knifemaking in Sheffield** Sheffield Hallam University p37

¹¹³ Crossley, D. et al 1985 op cit. p 34

¹¹⁴ 1879 Advertisement in Schmoller 1992 P 99

The labels applied after the products had been wrapped, and the catalogues advertising the firm's wares, could have been produced by any of the large number of Sheffield printing firms that existed in the nineteenth century. Unfortunately the labels do not give the printers' names, and in some cases several printers could have been used. An example is shown by the order book of William Marples and Son, woodworking tool manufacturers in the 1930s; seven firms were used to produce the labels in use at the time, including Woollen's, J Smith and Co, Greenup's, Greenup and Thompson and Thomas Forman and Sons Ltd, as well as Macmillan's of Derby and the Walsall Lithographic Co, Walsall.¹¹⁵

Name (* dealers only)	Location
John Gladwin	10 Dixon Lane, Damflask
Matthew and John Ibbotson	Rivelin
Marshall, Son and Peace *	74 West Bar
George Simons *	Matlock Mills
John Webb (agent)	17 Mulberry Street
Emmanuel Thompson and Co	Storrs
Thompson and Hawsley	Owlerton
Woodwood and Wiles	Olive Mills, 10 York Street and 22 Stanley Street

Table 6: Paper makers and dealers listed in the 1841 directory.

By 1884 the numbers in the printing trades had risen to 216, including 72 letter press printers, 35 lithographers and 109 engravers. One of largest catalogue printing firms in Sheffield in the nineteenth century was Pawson and Brailsford.

As with the horn trade, there appears to have been some movement to the west of the city by this time, and also to the Arundel Street district. In 1895 there was a total of six printing companies listed; today just one, Greenup's, continues to serve the cutlery trades.¹¹⁶

¹¹⁵ This order book is in the Hawley Collection, University of Sheffield.

¹¹⁶ Grayson, R. and Hawley, K. 1995 op cit. p 48

Goods being sent over long distances were packed in wooden boxes. The 1797 trade directory lists eight case makers situated in the Hollis Croft area, in Bailey Fields, Peacroft, Radford Street, Townhead Street, Westbar and West Street. By 1841 there were 25 listed under the heading of cabinet, razor scale and strop manufacturers as well as fourteen coopers. These firms continued to be located around Hollis Croft but some were situated on the western side of town around Rockingham Street, and in the Arundel Street area so that they could be near to the cutlery workshops which they served. In 1884 there were 76 firms in these areas.

An interview with Alan Day, son of the founder of the Sheffield Shear Company, shows that in the 1930s boxes could be ordered to the exact size required. Goods for export would be placed on the workbench and measured for the box maker, Wests on Alma Street. The boxes were made from one-inch thick wood and were lined with tarred brown paper to make them watertight. All the 'bright goods' were oiled and wrapped in greaseproof paper.¹¹⁷ Once goods had been packed, a card was put in the window notifying the railway carrier to collect the goods on a dray.

Quarrying for Grindstones

Towards the end of the seventeenth century, the Cutlers' Company, recognising the growth that had taken place within the industry, began to rent grindstone quarries, which they sublet to tenants at Crookesmoor, Swinehead Hill and Brincliffe Edge.¹¹⁸ These quarries were to remain an important source for grindstones, not just for the Cutlers' Company, until the nineteenth century. In addition, stones came from Wickersley, Beeley Moor and Ashurst, and, further afield, from 'Thrybergh Barnsley, Hathersage, Grenoside and Bakewell'¹¹⁹ Wickersley, near Rotherham, was said to produce 5000 grindstones per annum at the beginning of the nineteenth century.¹²⁰ In 1637 John Harrison also observed that 'course grinding stones for knives, scithes and alsoe very good millstones are heven out in Rivelin and other places.'¹²¹

¹¹⁷ Interview with Alan Day 16th April 1996.

¹¹⁸ Hatfield, J.&J. 1974 The Oldest Sheffield Plater Advertiser Press Huddersfield p 62

¹¹⁹ Hunter, J. and Gatty, A. 1869 op cit. p171

¹²⁰ Hey, D. 1980 Packmen, Carriers and Packhorse Roads Leicester University Press p142

¹²¹ *ibid* p141

The cutlery industry from the evidence above can therefore be said to have stimulated the growth of other trades in the area. However, at the end of the twentieth century the only survivors alongside the cutlery industry are the steel manufacturers, and those firms involved in printing and packing. The paper makers have all disappeared, with the exception of British Tissues at Oughtibridge who no longer have any connection with the cutlery trades. The horn trade has also disappeared after the invention of synthetic handles and as a result of changing public and political attitudes.

The buildings of these industries are not included in this study, due to time constraints, but reference here is essential if the location of the workshops of the cutlery industry is to be understood in the context in which they were built. Whilst the steel industry needed more specialised buildings, it is likely that those who provided the materials for handles and those in the printing and packing trades may have taken over buildings that had once been occupied by the cutlery industry.

Conclusion

This chapter has demonstrated that the landscape of the cutlery industry became more complex as the trade expanded, based on the inter-relationship of the specialisms within the industry and the allied trades such as steel, horn and bone, the packing industry and the quarrying of grindstones.

In the eighteenth century the reliance on water-power for grinding dictated that the majority of this work was carried out in the river-valleys upstream of the urban centre. In the nineteenth century steam-power freed the grinders from this constraint although many continued to use water-power until the twentieth century. Large-scale works however did develop with the advent of steam power, especially tenement works whose workspace was rented out mainly to individuals. The large integrated multi-storeyed works which became characteristic of the textile industry during the period were a rare sight in Sheffield even at the end of the nineteenth century.¹²² However it is these sites which survive in the 1990s and they give a distorted view of the organization of the industry.

The economic development of the town influenced the location of the

¹²² Sheffield Independent 15/4/1854

industry based on the need for expansion. The speculative nature of many building projects meant that dwellings and workshops were often built in close proximity. The industry often expanded into areas of new growth, firstly into the Hollis Croft area, and later the Arundel, Western, Riverside and Park areas. Economic data provides evidence for a thriving industry which expanded rapidly throughout the period. However the rate books suggest that there were large numbers of workshops that having been used by the cutlery industry were either not used again or only periodically. This cannot yet be explained sufficiently although the workshops appear to have been taken over by other trades once they had been abandoned by the cutlery industry and stresses the integration Sheffield's industries, many of which grew as a result of the successful cutlery trade.

The topography appears to have little influence on the location of the industry with the exception of water-powered sites and the large-scale works which were mainly limited to the Riverside area where land was available for expansion.

The industrial landscape of Sheffield was therefore formed as much by the organisational needs of the industry as by topographical features and geological resources.

Building costs, investors, and sources of finance associated with the workshops of the cutlery trades

Studies previously carried out on the Sheffield trades have emphasised the ease with which a cutler could establish himself in business. BR Dyson, for example, quoted the old saying that *'it only takes one and fowerpence to mak a cutler.'*¹ After the First World War it was alleged that it was possible to set up as a cutlery manufacturer 'with £5.'² However these studies and more recent ones, for example, L. Newton's study of the *Financing of Manufacturing in the Sheffield Region 1850-1885*³ have not considered the capital required for building the workshops utilised by the industry. The same can be said of other industries such as the boot and shoe industry of Leicestershire and Northampton and the Prescott watch making trade but some attempt has been made at assessing the fixed capital required by the textile industry in studies by SD Chapman and Jennifer Tann.⁴ The lack of research into the cost of erecting industrial structures can to some extent be excused by the scarcity of information available in most areas of the country. In Sheffield however the papers of the local quantity surveyors, the Fairbanks, have long been known, but neglected as a basis for such a study. Access to this collection has now been facilitated by the indexing on computer of all the data contained in the field books, building books and correspondence papers by a research group at the University of Sheffield.

¹ Dyson, B.R. 1936 reprinted 1979 A Glossary of Words and Dialect formerly used in the Sheffield Trades, Sheffield Trades Historical Society Waddingtons p4

² Townsend, H. 1954 *The structures and problems of the Sheffield Cutlery Trade* District Bank Review (Local Pamphlets Vol198/9, Local Studies Library, Sheffield) p22. This can be compared to other workshops industries such as the boot and shoe industry in Leicester where Hogg (1958 *Footwear Manufacture* Victoria County History: Leicestershire Vol. IV edited by R.A. Mckinley, Oxford University Press, London, p317.) stated 'men of Straw' could easily set up as manufacturers.

³ Unpublished PhD Thesis University of Leicester 1993 see also: Reid, C. 1976 *Middle Class Values and Working Class Culture in Nineteenth Century Yorkshire* Essays in the Economic and Social History of South Yorkshire edited by Pollard, S. and Holmes, C. South Yorkshire County Council p276; Pollard, S. 1959 A History of Labour in Sheffield Liverpool University Press p56; Taylor, S.A. 1993 in A History of Sheffield 1843-1993 vol. II (Society) Sheffield Academic Press, Sheffield p198

⁴ Chapman, S.D. 1971 *Fixed capital formation in the British cotton manufacturing industry* Aspects of Capital Investment in Great Britain 1750-1850: Report of a Conference held at the University of Sheffield January 1969 edited by J.P.P. Higgins, and S. Pollard, Methuen, London pp57-108; Tann, J. 1970 The Development of the Factory Cornmarket Press, London pp27-47

In view of the limited extent of previous work this chapter sets out to answer the following questions. How much capital was required to set up in business? How profitable was it to own a workshop? Did the cutlers own their own workshops and initiate the building of new buildings for the industry? How much did a workshop cost to build? Where did the money come from?

The Costs of Establishing a Business and Renting or Building a Workshop.

The Cost of Establishing a Business

Sally Ann Taylor wrote that 'the tools, space and capital needed to undertake any branch of production were both few and inexpensive.'⁵ Those who set up on their own may have been apprentices who had gained their freedom, or men who had previously worked for larger firms but who had decided to branch out on their own. This section addresses the question of how much capital the cutler would require, and assesses the option of renting rather than erecting or buying workshop accommodation. Further, it assesses whether investing in the workshops of the cutlery industry was profitable.

Valuations, for example, those in the Merryweather and Corbett collection, which includes the papers of William Stead of Owlerton and Robert Lowe of Shiregreen, Sheffield surveyors and valuers, can be used to establish the capital needed by a cutler to purchase tools in the nineteenth century. In 1869 James Helliwell, cutler, of Low Bradfield had tools worth £2-3-6 including two vices and a board, two stools, three hammers, two riveting stithies, rasps and borers, a screw press, three pairs of tongs, hearth tools and a glazer and frame. The most expensive items were a stock and stiddy worth fifteen shillings and a pair of bellows worth eight.⁶ George Wilson, 16th November 1876, is recorded as having owned three vices, stock and stiddy, glazer frame, eight glazers, two pairs of bellows, three stools, files, rasps and parsers⁷, scale press, three pairs of

⁵ Taylor, S.A. 1988 Tradition and Change, the Sheffield Cutlery Trades 1870-1914
Unpublished PhD thesis University of Sheffield p22

⁶ Robert Lowe Volumes, Merryweather and Corbett Collection, Rotherham Archives, Vol. 107 p121
A stiddy/stithy is a small anvil used by cutlers and the stock is a block of wood or stone on which it rests. A Glazer is used for polishing finished items.

⁷ parser = bow drill

shears, and pair of rasping clams⁸, a metal store and water tub totalling £3-13-0.⁹ Matthew Furness, cutler at Liberty Hill in Stannington had tools worth £3-18-0¹⁰ and John Flinders, also of Liberty Hill, a blade forger, tools worth £4-7-6.¹¹ James Vickers, a scale presser at Stannington, had two workshops. One contained tools and raw materials worth £6-10-0, including £2-0-0 of horn shavings, and the other items to the value of £3-14-0.¹²

The average cost of a set of tools would therefore be around £3-£4, based on the valuations above, but many of those wishing to establish their own business would have made many of their own tools during the time of their apprenticeship. The greatest cost in establishing a business would therefore be the initial outlay required for accommodation.

The Cost of Renting

The majority of the workshops identified by the rate books were rented (Figure 1). On average, between 1820 and 1850, only 10% of the workshops were owner occupied.¹³ After 1850 the percentage rises to 35.5%, but analysis of the data has shown that the pattern is not consistent throughout all six areas. In the Park, Riverside and Western areas, owner occupation accounts for up to 50% in some years (Figure 2), while in the Hollis Croft and Central areas the figure never rises above 25%. This can be explained by the types of buildings found in each area. In the Hollis Croft and Central areas there are few large-scale purpose-built workshops or factories but in the Riverside and Park areas, larger firms occupying individually-designed structures are more widely represented. Land sales from the Norfolk and Fitzwilliam estates in the early nineteenth century do not appear to have had any influence on ownership patterns of buildings. Nunn argues that, based on his research of final sales registers, estate geography was largely unaltered 'as

⁸ clams = clamps used when rasping or filing

⁹ Robert Lowe, Merryweather and Corbett, Vol. 186

¹⁰ Robert Lowe vol. 208 p135 May 29 1878

¹¹ Robert Lowe Collection, June 1883.

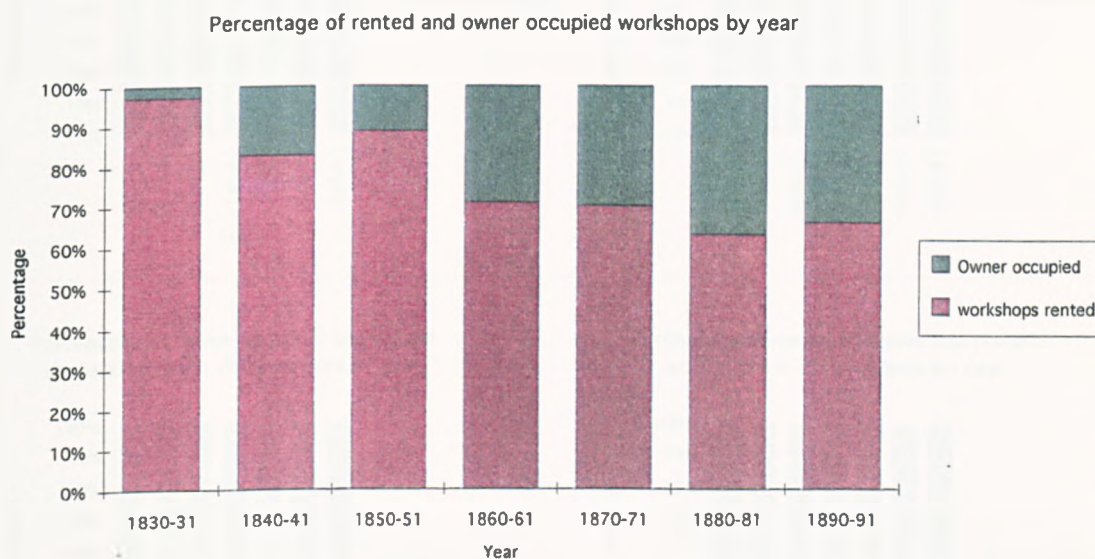
¹² Robert Lowe, Vol. 135, 7th November 1870.

The author wishes to express her thanks to Dennis Smith for the information from the valuations in the Merryweather and Corbett papers.

¹³ The reliability of the data can however be called into question as the owner is not always recorded

most of the property sold consisted of small urban lots or enfranchisements.¹⁴ Taken as a whole these figures confirm that the average cutler was more likely to rent than pay for the erection of his own workshop although after 1850 there are growing numbers of partnerships which also correspond to the rise of owner occupation. This is considered later in the chapter.

Figure 1. Percentage of rented and owner occupied workshops by year.



Accommodation could be found in contemporary newspapers which contained advertisements for workshops to buy and rent.¹⁵

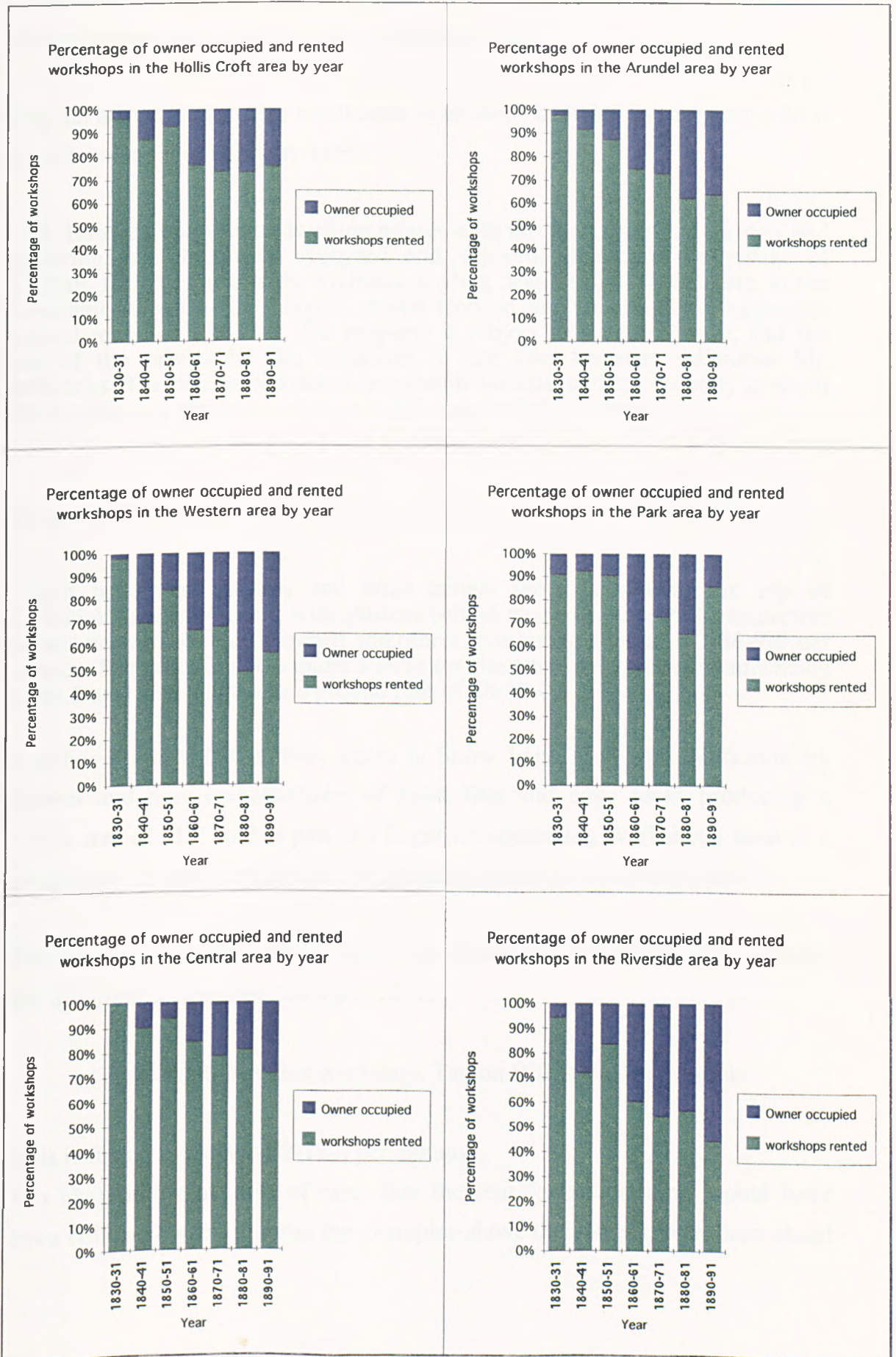
Advertisements in the *Sheffield Telegraph*,¹⁶ relating to workshops available to let, give some indication of the rent charged for those suitable for the cutlery trades. They also indicate the likely income an investor in workshop buildings could expect. Comparisons, however, are difficult to make, the size of the ground plot rather than the structures being indicated in the advertisement. Mr Nicholson, the largest property auctioneer in the town between 1850 and 1870, held an auction almost every Tuesday at four o'clock at his premises in the High Street. Other auctioneers handling workshops included John Taylor

¹⁴ Nunn, P. 1985 op cit. p101. His reference is SCL Arundel MSS S431, the final register of Vincent Eyre Sales under the Estate Acts of 1802, 1805 and 1810.

¹⁵ In the *Sheffield Telegraph* 1868 Mr. Nicholson advertised 6 properties to let and in 1877, in the week April 19th-21st private advertisements for 9 workshops appeared.

¹⁶ Available on microfilm in Sheffield Local Studies Library.

Figure 2: Percentage of owner occupied and rented workshops by area.



and Messrs Schofield and Son. Many of the workshops were sold in conjunction with houses and thus the rentals quoted are usually based on several properties rather than the workshops alone.

Typical advertisements for small scale workshops included the property sold at Mr Nicholson's in February 1866:

'All those six cottages or dwelling houses with the workshop and garden and appurtenances therewith occupied and enjoyed, situate in the village of Darnall, facing or near to the highway leading from Darnall to Catcliffe, in the occupations of Charles Gregory, Aaron Hobson and others at the aggregate annual rental of £32-11-2. The property is subject to a right of way, and the use of the privies by the occupiers of the two cottages adjoining Mr. Jeffcocks. The houses command respectable tenants, and the property is worth the attention of persons seeking a small and profitable investment.'

Or Lot 3 sold on the 5th May 1866:

'Eight brick built houses and three cutlers shops, situate at the top of Creswick Street, Walkley, with gardens behind the same, now in the respective occupations of Richard Howard and others, producing a rental of £86-9-0 per annum. The ground plot is under a lease for the term of 99 years, commencing Lady Day 1859, subject to a ground rent of £8-10-0.'

Another example is the 'two rooms in Snow Lane used as a Workshop by Groves and Son, manufacturers of saws, files and edge tools, producing a yearly rent of £10' sold as part of a larger lot containing workshops used as a cooperage, a warehouse, office and packing rooms on the 3rd July 1866.

Private advertisements also appeared for small scale workshops, for example, the *Sheffield Telegraph* 2nd June 1877:

'To be let, file cutters workshop, Tapton Hill, Rent 1s per week.'

This is the equivalent to £2-12-0 per annum.

It is likely in the majority of cases that the rent for a workshop would have been collected weekly. From the examples above this ranged from 1s to about

4s a week. This is significant when calculating the amount of 'start-up capital' required, as it reduces the initial outlay.

Medium sized premises were also on offer at Mr Schofield and Son's auction in September 1853:

'The dwelling house, warehouse, workshops and premises called 'Shoreham Works,' Shoreham Street, in the occupation of Mr Richard Ibbotson, as a saw and edge tool manufacturer, with workshops adjoining in the occupation of William Wild, producing an annual rental of £53-10-0. The premises are in excellent condition and are well adapted for a moderate sized manufacturer. The ground plot contains 428.5 square yards and is held under a lease from the Duke of Norfolk for a residual term of 99 years from 12th September 1840. This lot will be transferred subject to an approved ground rent of £5.'

As well as by Mr Nicholson on the 7th May 1873:

'Leasehold workshops and premises in Rockingham Lane. All those compact and convenient workshops, stable, yard, and premises known as Rockingham Place, Rockingham Lane, Sheffield, in the several occupations of Messrs Joseph Wilson, saw manufacturer, John Shaw, table blade forger, Joseph Galathorpe, scale presser, William Godfrey, joiner, William Webster scissor manufacturer and others.

The ground plot contains 736 square yards and is held under a lease for 800 years, from 23rd October 1807, at a ground rent of £2-2-8, and the rental of the property is £55-17-0.

To a manufacturer who could occupy the whole premises they would find it very convenient being well lighted and having a spacious yard, water and conveniences, or the property would form a desirable investment, being well tenanted and well adapted for almost any description of the trade.'

Renting medium-scale works such as these on a weekly basis would mean an outlay of around £1-0-0.

In the textile industry Chapman has shown how Robert Owen and the Salvin Brothers in Manchester deliberately built their mills larger than required in order to rent rooms out to others.¹⁷ Tann has also commented that the 'letting of 'room and power' was common. When a large factory was built by a manufacturer he often let part of it, realising that he would be unable to fill the

¹⁷ Chapman, S.D. 1971 *Fixed Capital Formation in the British Cotton Manufacturing Industry* in Higgins JPP and Pollard S edits Aspects of Capital Investment in Great Britain 1750-1850: Report of a Conference held at the University of Sheffield January 1969 Methuen, London p118

entire building with machinery for some years.’¹⁸ In large-scale works, for example Globe and Sheaf Works, which were built for the owners to occupy; any renting of workshops that occurred was to the ‘out-workers’ of the firm rather than to outside concerns. In Sheffield, however, the occurrence of large buildings designed for a single occupancy is rare; the majority were designed as tenement factories, as analysis of floor patterns later in this thesis will show.¹⁹ This indicates the speculative nature of such buildings, where the owner would hope to rent out each room, or in the case of ‘wheels’, each individual trough. For example, Shepherd’s Wheel, on the Porter, was owned by John Eyre in 1801 and operated by tenants such as Samuel Hind and Benjamin Wildgoose.²⁰ Fairbank estimated in c1830 that in a ‘wheel in Thomas Street, 120 troughs would produce an annual rental of nearly £610.’²¹ In some cases there is evidence for the sub-letting of workbenches or ‘sides’ in small workshops such as Nook Lane, Stannington where the owner and his two brothers rented space to two other cutlers.

The evidence therefore suggests that, for the owner, workshops could provide a valuable income especially when they were rented in conjunction with domestic property. For the cutler establishing himself in business the outlay for rent, although it accounted on average for between a tenth and a fifth of his income,²² was a feasible possibility. Doris Walsh recalled that it could take ‘two days work to pay the rent’²³ during the Second World War but little had changed in the industry since the nineteenth century.

In summary, the cutler would require between £3 and £4 to establish himself in business on his own account during the nineteenth century including the provision of tools and the renting of workshop space. In comparison, how much did it cost to erect a workshop?

¹⁸ Tann, J. 1970 The Development of the Factory Cornmarket Press, London p27

¹⁹ Chapter 5 Internal features of the workshops of the cutlery industry

²⁰ Crossley, D. et al 1989 Waterpower on the Sheffield Rivers STHS & University of Sheffield. Printed by Charlesworth & Co Huddersfield p74

²¹ CP2 (132) Fairbank Collection

²² Based on S. Pollard’s 1959 op cit. p60 average of c 30s a week for a grinder, for a cutler the average was c 20s

²³ Doris Walsh quoted in Jenkins, C. and McClarence, S. On a Knife Edge SCL Publishing Sheffield p 31.

The Cost of Erecting a New Workshop

Chapter 1 identified four sizes of workshop used by the cutlery industry based on Lloyd-Jones and Lewis's classification; small, medium, large and giant. Research into the characteristics of the workshops has shown that these can be defined by floor space area as well as by the rateable value. Small workshops varied in size between ten and 36 square yards (8-33m²); medium buildings had workspaces of up to 63 square yards (53m²) and large and giant buildings could have had rooms with a total area of 300 square yards (250m²) or more. The field books, building books and correspondence papers of the Fairbank Collection contain 204 references to workshops, shops and smithies.²⁴ However only nine complete workshops were identified from which the estimated cost of building could be established for the late eighteenth century.

Examples of the cost of small workshops include John Rimmington's two smithies near Allen Lane which had a total area of 32.88 square yards and Thomas Watson's²⁵ workshop (20.44 yds²). These cost between £22-7-3 and £24-8-9 whilst that of George Patten²⁶ (35.88 yds²) cost £41-2-9. Medium-scale premises such as J Darwent's smithy (52.94 yds²)²⁷ cost £24-8-9 while those of Price Hepenstall (49.93 yds²) cost £41-2-9²⁸ and James Kirby (47.45 yds²) cost £46-13-5.5.²⁹ All prices include carpentry and joinery work as well as brickwork, but not glazing or slating.

Large-scale works appear less frequently in the building books. One example is Castle Orchard Wheel (379 yds²) commissioned by William Grant in 1787. The cost of the brick and stonework alone amounted to £102-9-1¹/₄.³⁰ Another is for a complex of buildings including long workshops (474.7 yds²)³¹ and timekeepers house for Coldwell and Co costing £428-1-9¹/₄ inclusive of carpentry and joinery, glazing, painting, plastering, slating, iron work and

²⁴ The terms searched for on the database were workshop, shop, smithy and smithies. All these terms have been identified as relating to buildings associated with the cutlery trades. There is always the problem that the term shop could also relate to a retail outlet but cutlers workshops can usually be identified by the presence of a hearth.

²⁵BB81 p2 19/4/1796 and BB82 9/7/1798. Note: all BB, FB and CP references used hereafter refer to the Fairbank Collection, Sheffield Archives.

²⁶ BB42 p116 14/12/1770 and BB43 p 68

²⁷ BB30 p18 4/9/1765

²⁸ BB41 p 10 28/12/1769 and BB41 p22 13/1/1770

²⁹ BB69 p46 8/12/1784

³⁰ BB71 p84 1787-01-01

³¹ BB79 p170 1794.

brickwork.³² The correspondence papers give details of a proposed new 'wheel' between Thomas Street and John Street, 940 square yards in area, containing 60 heavy and 60 light troughs in addition to two steam engines and three boilers.

'Our estimate of the cost of the buildings, fence walls, reservoir and troughs amounts to £3506-12-2.
Total cost of steam engines and machinery and boilers £3109-0-0'³³

In summary, the cost of erecting the typical small-scale workshop in Sheffield in the later part of the eighteenth century was between £24 and £50. However large-scale works could run into thousands of pounds, an amount similar to that needed by those erecting textile mills in the West Riding. Jenkins shows that a manufacturer would need between a 'few hundred and many thousands of pounds' to establish a business.³⁴

By 1800 the Fairbank firm ceased to carry out regular building surveys, preferring the land survey work connected with enclosure and the provision of roads and canals. The series of building data thus ends, and there are no comparable collections of surveyors' or builders' records for the nineteenth century. The Merryweather and Corbett Collection contains details of the contents of cutlery workshops and smithies rather than the costs of erecting them.³⁵ The valuation of property however, when it exists, may provide some indication of building costs. In November 1860 John Allot's house, garden and smithy were valued at £170-0-0. The workshop being £20-0-0 and worth in rent £1-10-0 p.a.³⁶ Another example is the valuation on Robert Coldwell's and Robert Deakin's houses and shops worth £25-0-0 and £29-0-0 respectively in c1859.³⁷ However as the sizes are not given, no summary of nineteenth century costs for erecting such property can be constructed.

In order to compare the cost of renting, with figures from the mid nineteenth century, with the cost of building, evidence for which is late eighteenth

³² BB80 p1 A survey of the buildings that have been erected for Henry Froggatt and Wm Coldwell made by William Fairbank according to the rates stated by J Stacey and Robert Unwin.

³³ CP2 (132)

³⁴ Jenkins, D.T. 1975 The West Riding Wool Textile Industry 1750-1835. A Study of Capital Formation, Pasold Research Fund, Wiltshire p191

³⁵ Smith, D. 1995 Victorian Valuations Transactions of the Hunter Archaeological Society Vol. 18.

³⁶ Merryweather and Corbett Collection Book 46 12/11/1860. Rotherham Archives.

³⁷ Merryweather and Corbett collection 113/B loose papers vol. 39 p96 Rotherham Archives

century in date, a price index has to be created. Unfortunately Maiwald's 'Index of Building Costs in the United Kingdom'³⁸ begins in 1845, while Lord Beveridge's index³⁹ assessing prices given for the Office of Works ends in 1810. Only Phelps-Brown and Hopkins' work on builders wages covers the whole period 1750 to 1900.⁴⁰ Their index has therefore been used on the supposition that building wages are related to total building costs.

Taking as examples, T. Watson's small workshop (£22-7-3) built in 1797, James Kirkby's, 1787, medium scale workshop (£46-13-5) and the 'giant' scale Thomas Street Grinding Wheel (£3506-12-2)⁴¹ built in c1820, Table 1 sets out their comparative prices in 1825, 1850, 1875 and 1900, using the Phelps-Brown and Hopkins index.

Workshop	Cost when new	1825	1850	1875	1900
T Watson (small) (1797)	£22-7-3	£37-19-11	£38-17-7	£54-3-9	£94-3-2
J Kirby (medium) (1787)	£46-13-5	£67-17-8	£70-0-2	£97-11-7	£169-14-4
Thomas Street (Giant) (1820)	£3506-12-2	£3506-12-4	£3616-3-11	£5040-15-1	£8766-10-7

Table 1: Price increases from new, based on Phelps-Brown and Hopkins' index of builders wages, used for small, medium and large workshops, at quarterly intervals throughout the nineteenth century. These do not allow for any improvement in services, e.g. water or gas, or building materials i.e. they are the costs of the identical building in the sampled years.

Maiwald's index is more cautious and records only a 10% increase in prices between 1850 and 1900 instead of the 59% recorded in Phelps-Brown and Hopkins' index which is used in calculating the equivalent of T. Watson's

³⁸ Maiwald, K. 1954 *An Index of Building Costs in the United Kingdom 1845-1930* **Economic History Review** 7 p187-203

³⁹ Beveridge, Lord W. 1968 *Price Relatives, Office of Works* in Beverage et al **Prices and Wages in England from the twelfth to the nineteenth centuries** Cass, London

⁴⁰ Phelps-Brown, E.H. and Hopkins, S.V. 1955 *Seven Centuries of Building Wages* **Economica** August 1955 p195-206 and *Seven Centuries of the price of consumables compared to Builders Wage-rates* **Economica** November 1956 p296-314.

⁴¹ Building costs only, no machinery

smithy. If Maiwald's was used the maximum prices in 1900 for small, medium and large workshops would be £42-14-5, £77-0-2 and £3977-16-4 respectively. This suggests that in relation to wages the cost of building materials fell during this period.

Although the evidence is not conclusive, these figures provide a basis from which the cost of building a new workshop can be compared with an average cutler's wage in the nineteenth century and with the cost of renting a workshop.

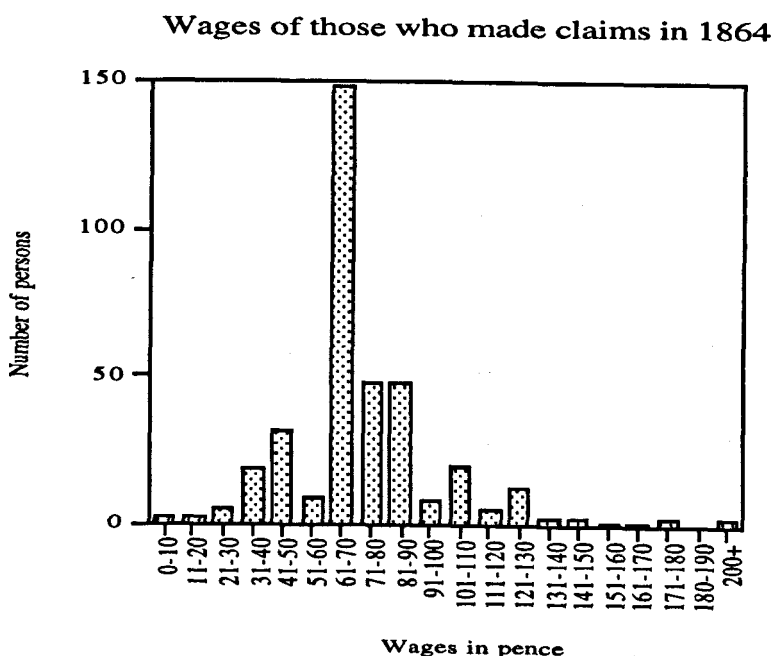


Figure 3: Summary of wages in pence per day listed in the Flood Claims and number of persons claiming each amount.

Firms' records do not give enough detail in their wage books to estimate the average wage of those connected with the cutlery industry. However, Flood Claims,⁴² made in 1864 after the Dale Dyke Dam disaster, contain a record of 330 forgers, grinders and cutlers who gave details of their loss of earnings. The figures must be approached with caution; as with all insurance claims the amounts are likely to have been inflated. Figure 3 shows a summary of the wages quoted and how many people claimed to be earning each amount per day.

⁴² Flood Claims CA7 Sheffield Archives

The graph indicates that the average daily earning was between 61 and 70 pence per day or between 30s6d and 35s a week based on the average of six working days at the large steam wheels in the Riverside area where the claimants carried out their trade. Pollard calculated in 1850 the cost of living, including food, clothing, coal and rent for a family of two adults and three children would have been approximately 23s7d.⁴³ Using his cost of living index, the same necessities in 1864 would have cost approximately 25s7d. This is the equivalent of between 73 and 80 percent of their earnings. In his calculations Pollard included the assumption that 3.4% of the weekly expenditure would be put aside as savings. Holland however reported, in 1843 that he thought that the provision for savings was insignificant amongst the trade as a whole because:

‘The various branches of the cutlery manufacture are exceedingly liable to fluctuations, and it is perhaps questionable, whether the demand for several consecutive months, is ever fully equal to the ability to produce. The different branches are overstocked, and none, except first rate workmen, engaged in the making of fine or costly articles, are remunerated in such a manner, as to be enabled to secure a provision for the future.’⁴⁴

In comparison, those in the building trades had a lower standard of living than those employed in the cutlery trades. Phelps-Brown and Hopkins state that in 1864 a craftsman builder would earn 56d a day and a labourer 36d, the equivalent of between 18 and 28s a week.⁴⁵ If prices of basic goods rose, the ability to save would have been removed instantly. Figure 4 shows that between 1853 and 1858, 1867 and 1870 and 1872 and 1875 those in the cutlery trade would have been squeezed to survive as wages fell and the cost of living rose. This suggests that very little building would have taken place, especially as building costs rose rapidly in relationship to cutlers wages. Figure 5 shows that during those years there was a decline in the number of workshops built; however the years 1877-78 and 1886 -1890 saw fewer applications in the building registers. These were years of severe depression throughout the country and not just in the building and cutlery trades, thus curbing the demand for new structures due to lack of money to invest.

⁴³ Pollard, S. 1957 *Real Earnings in Sheffield 1851-1914* Yorkshire Bulletin, Economic and Social Research, Universities of Sheffield, Hull and Leeds IX (2) p59

⁴⁴ Holland, G.C. 1843 The Vital Statistics of Sheffield Tyas London p135

⁴⁵ Phelps-Brown, E.H. and Hopkins, S.V. 1955 op cit. p205

Figure 4: The cost of living compared to builders and cutlers wages and building prices 1850-1900.

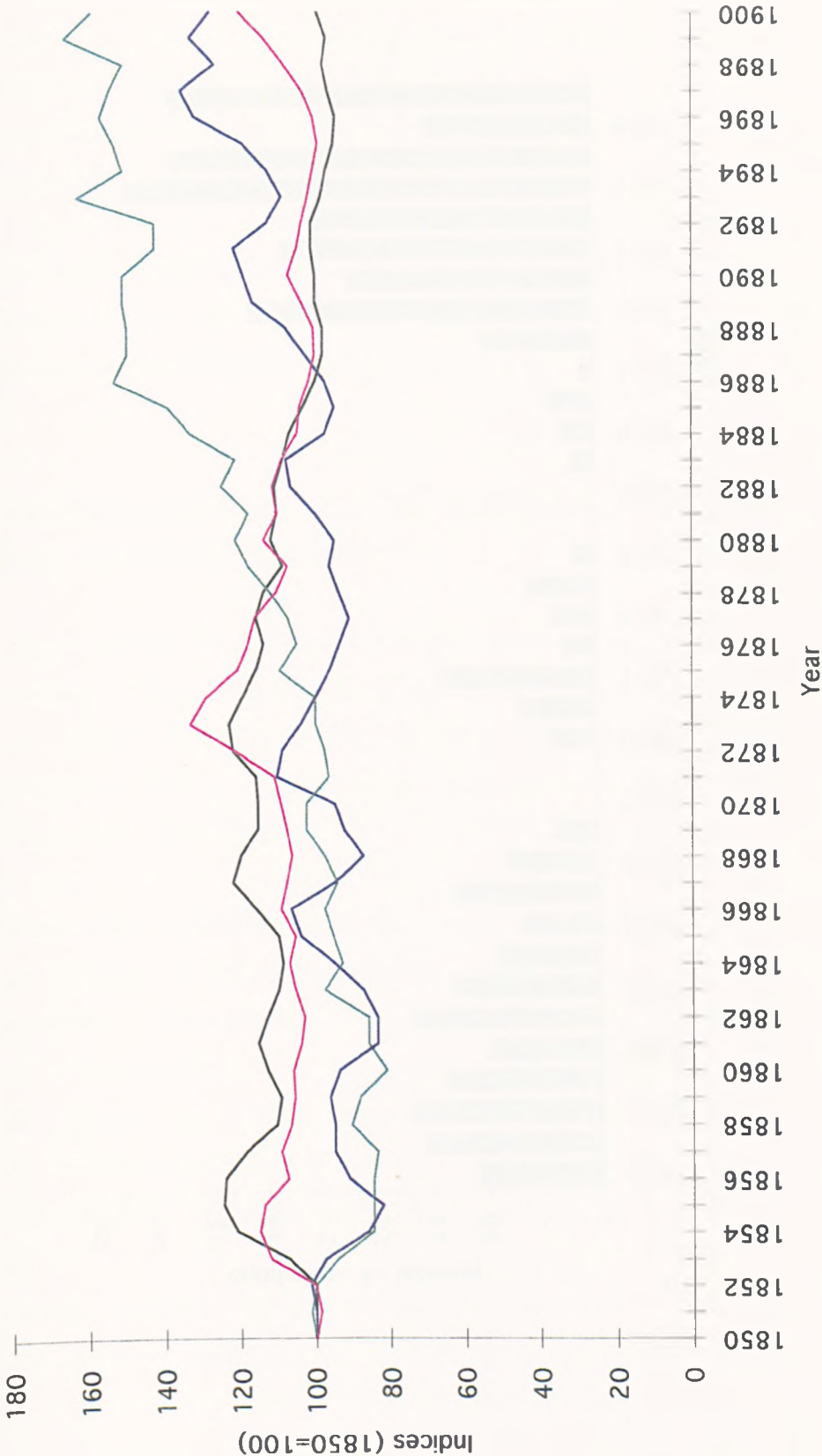
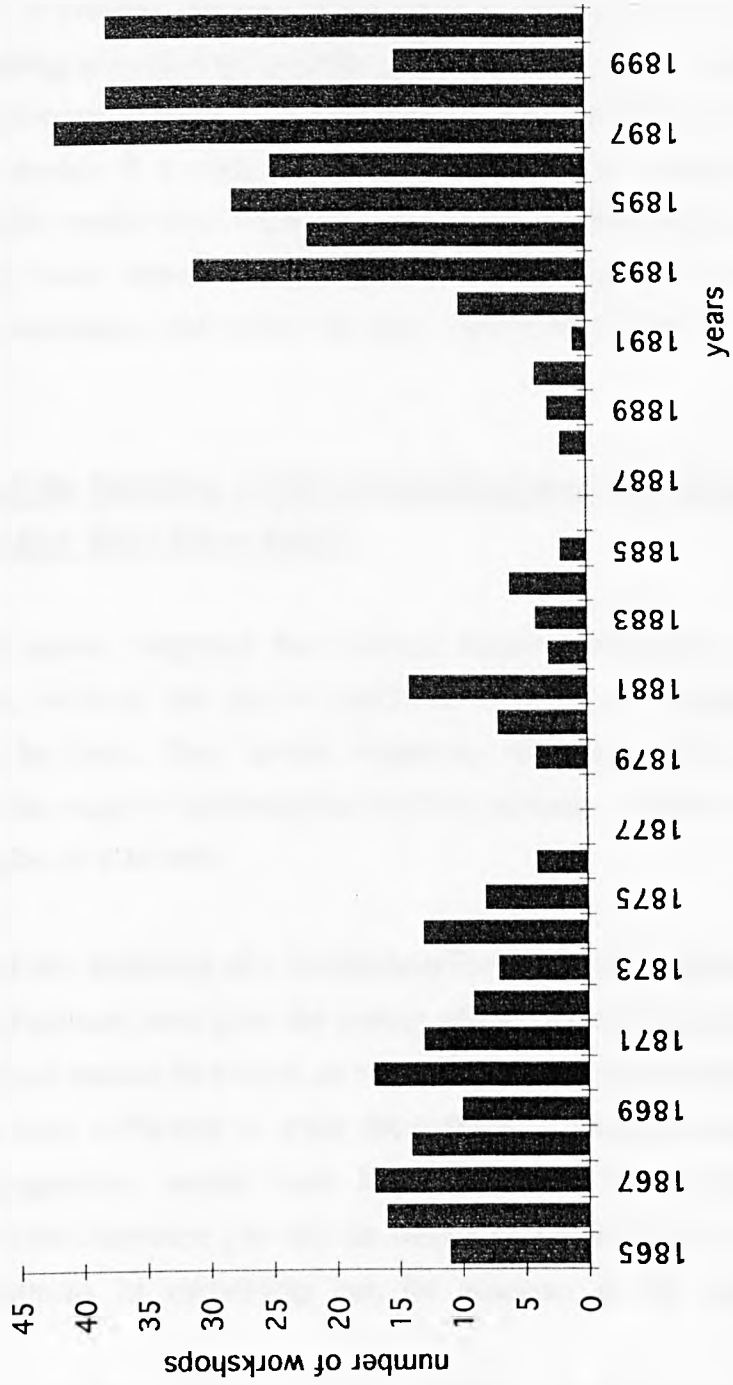


Figure 5: Workshops built 1864-1900 (data from the Building Registers).



On balance the average cutler was more likely to rent a workshop than buy or build a new one. If 3.4% of his earnings were saved every week (c 9d) at 1850 prices, without taking any loans, it would take 35.9 years to pay for building a workshop, i.e. a working lifetime! If the same amount was put away towards paying for renting a workshop, a cutler could take on a small workshop within a few weeks of starting work assuming that the rent was collected weekly (c2 shillings per week). If a cutler or a builder wished to build a workshop, obtaining credit would have been the only viable option, but as the majority of workshops were rented, the questions must be asked as to who was building the workshops and where did they obtain the money?

Who Initiated the Building of New Workshops and Who Maintained the Workshops After They Were Built?

The evidence above suggests that cutlers would never have accumulated enough funds, without the aid of credit, to own or to commission a new workshop to be built. This section examines the occupation structure of ownership at the stage of initiating the building process, and the ownership of the building after it was built.

Who Initiated the Building of a Workshop for the Cutlery Industry?

Although the Fairbank data give the names of the clients using the surveyors, their occupations cannot be traced, as no trade directories exist for this period. Time has not been sufficient to trace them through parish records, assuming that their occupations would have been recorded. The building registers beginning in 1864 therefore provide the only substantial body of evidence by which the patterns of ownership can be assessed at the initial stage of building.

The building registers, introduced as a result of the local government regulations banning back-to-back housing, give details of the owners, their addresses, the proposed property and its location. By cross-referencing the owner with the trade directories it was possible to identify the occupations of 73% of the 995 owners identified in the registers between 1865 and 1891. Of

these nearly one third were cutlers (31%), 12% were in the building trades, including architects(1%),⁴⁶ and 8% were craftsmen.⁴⁷ The remaining 22% were spread between professional⁴⁸ (6%), commercial⁴⁹ (5%), food⁵⁰ (4%), manufacturers⁵¹, minerals, agriculture, executors of wills and other categories (8%). These patterns support Chalklin's theory for an earlier period that in 'Sheffield and Birmingham construction was mainly financed by undertakers outside the (building) trade'.⁵²

Throughout the period 1865 to 1890 the pattern does not vary, the cutlers and those not connected with the building trades always making up the largest proportion of new workshop owners (Figure 6). This indicates that although the cutlers appear not to have earned enough to build a new structure, money must have been available to borrow.⁵³ Of the 35 owners, within the cutlery classification, who can also be followed up in the rate books, 34 who initiated the building of workshops required them for their own use. J&J Maxfield, manufacturers of nickel silver spoons, fork blanks etc., piercers and stampers, for example, required new premises; by 1891 they had moved from a shop and warehouse in Eldon Street to Sidney Street where there were workshops, machinery, offices, warehouse and a stable. The permission to build the new premises was granted in 1876. Atkin Brothers, silversmiths and manufacturers of electroplated and Britannia metal wares, desserts, fish carvers and cutlery, Matilda Street, added to their existing premises as well as erecting new workshops in 1887. The only owners in the registers traced as letting out their newly-built premises, in Green Lane, were Steel and Garland, stove grate, fender and fire iron manufacturers, to Moss and Gamble, merchants and

⁴⁶ 1% of total, 10% of building occupations

⁴⁷ Craftsmen include, button makers, cabinet case makers, carvers and gilders, comb makers, coopers, cordwainers, dressmakers, engineers, French polishers, hosiers, pianoforte tuners, straw hat manufacturers, tailors, watch makers, wood engravers, painters, founders, and wheelwrights.

⁴⁸ Includes accountants, appraisers, estate agents, bankers, brokers, auctioneers, clerks, land owners, dentists, doctors, gentlemen, incumbents, justices of the peace, surgeons and teachers.

⁴⁹ Includes, beerhouse keepers, carriers, chemists, omnibus operators, drapers, earthenware dealers, glass dealers, ironmongers, grinderly and leather dealers, milliners, toy dealers and shop keepers.

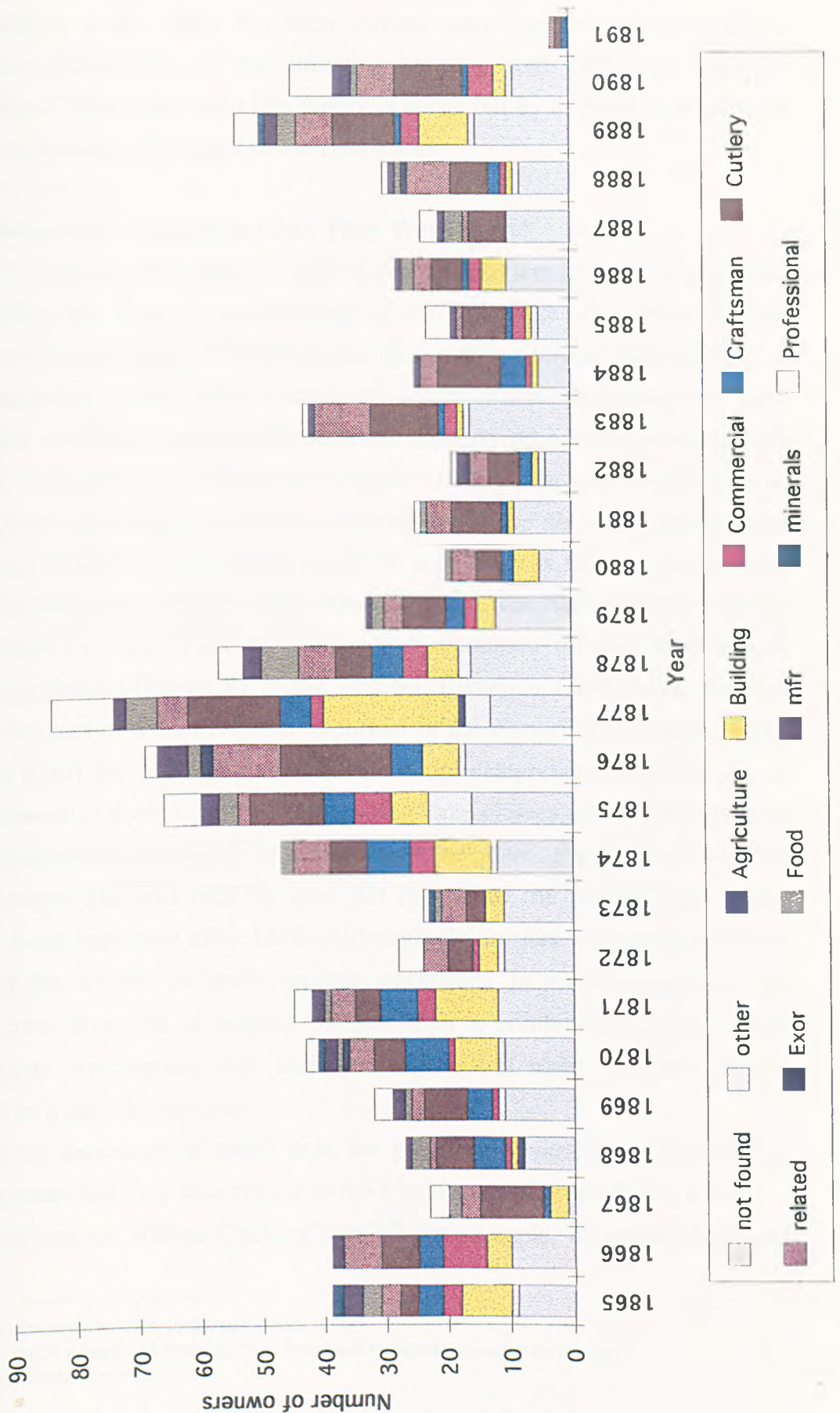
⁵⁰ Includes grocers, fish dealers, wine and spirit merchants, grocers, butchers, and restaurant owners.

⁵¹ not related to cutlery

⁵² Chalklin, C.W. 1974 The Provincial Towns of Georgian England: A Study of building process 1740-1820 Arnold London p282

⁵³ Sources of finance will be discussed later in the chapter

Figure 6: The occupation of owners identified in the building registers by year.



manufacturers of steel, files, saws and tools, and WR Whitworth, ale and porter merchant, who rented his workshop in West Street to John Wilson, file manufacturer, in the 1880s. No other owners were traced in the rate books, suggesting that many of those initiating building sold within ten years of completion.⁵⁴ To some extent this theory is borne out by assessing the patterns of the occupations of owners in the rate books.

Who Owned the Workshops Once They Were Built?

Figure 7 indicates that although the largest proportion of owners remained unidentified, the majority of those who were found were connected with the cutlery or related trades. Builders, unlike those who initiated the building of the workshops, did not play an important role in maintaining them after they were built and like the erection of domestic property probably used the money from the sale to invest in their next project. In a similar way to patterns of renting, the percentages of each occupation vary in the six areas. Throughout the period 1820-1891, those who could be identified as having connections with the cutlery and related trades dominated all areas; their presence in the Western and Riverside, Park and Hollis Croft accounted for more than half of all the occupations (Figure 8). In the Arundel, Riverside, Central and Western areas, executors of wills were also important in the ownership structure, while in Hollis Croft the professional and commercial categories accounted for at least a quarter of those identified. The professional classes were also important in the Riverside, Park and Western areas of the town. Figure 9 shows that these patterns changed little by year, but in general the professional classes became more important after 1860. Although the cutlers represented a large sector of the owners of ready erected workshops in many areas, over the whole town they still accounted for less than a combination of the other occupations represented, thus indicating again that many saw the cutlery industry as a safe investment.

Most of the executors of wills⁵⁵ held the property recorded to them for less than ten years but they also appear to have held several properties at a time. The executors of William Cocking's will,⁵⁶ for example, between 1850 and

⁵⁴ This was the sample taken in the rate books.

⁵⁵ They are rarely named and therefore their individual occupations cannot be traced.

⁵⁶ Timber and slate merchant

Figure 7: The occupation of the owners of workshops by year (data from the ratebooks).

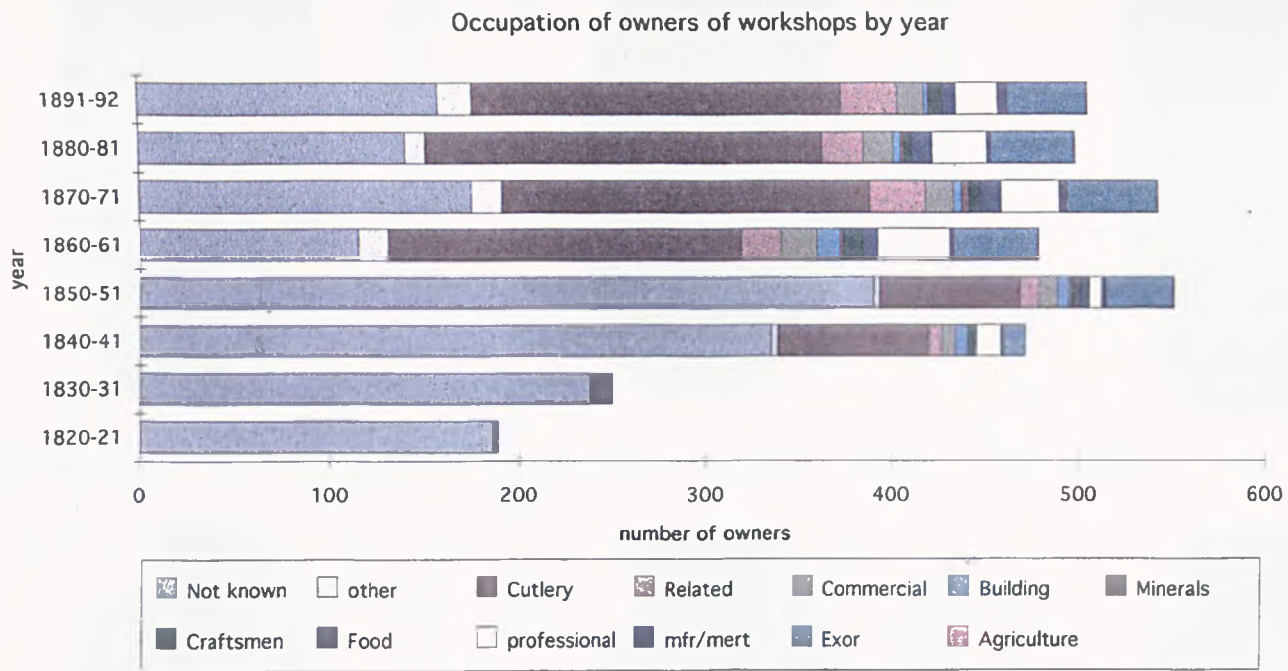


Figure 8: The occupations of workshop owners by area in the nineteenth century.

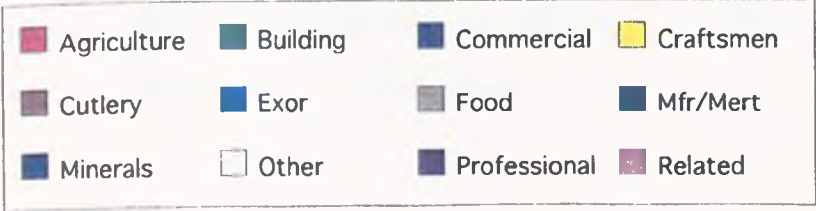
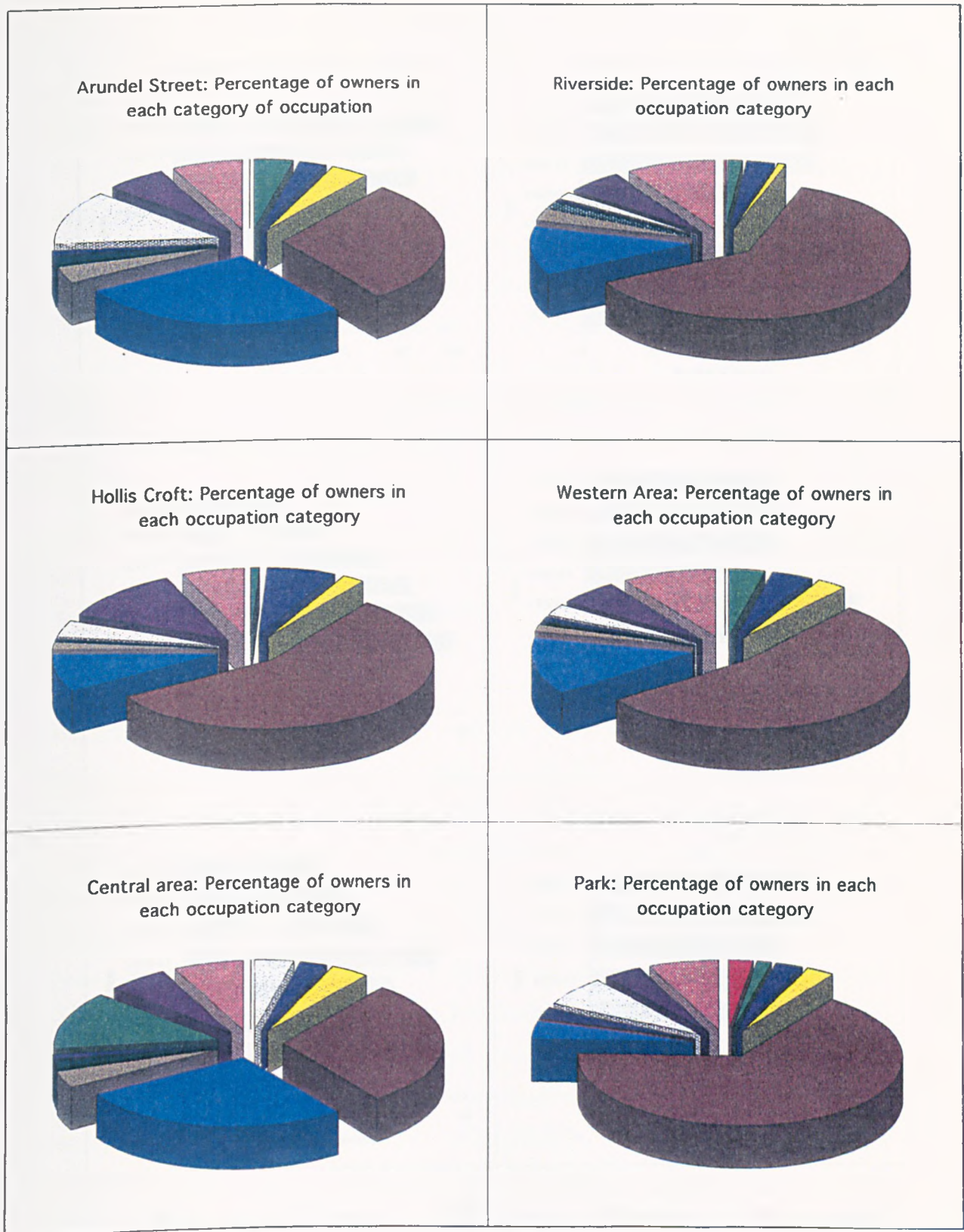
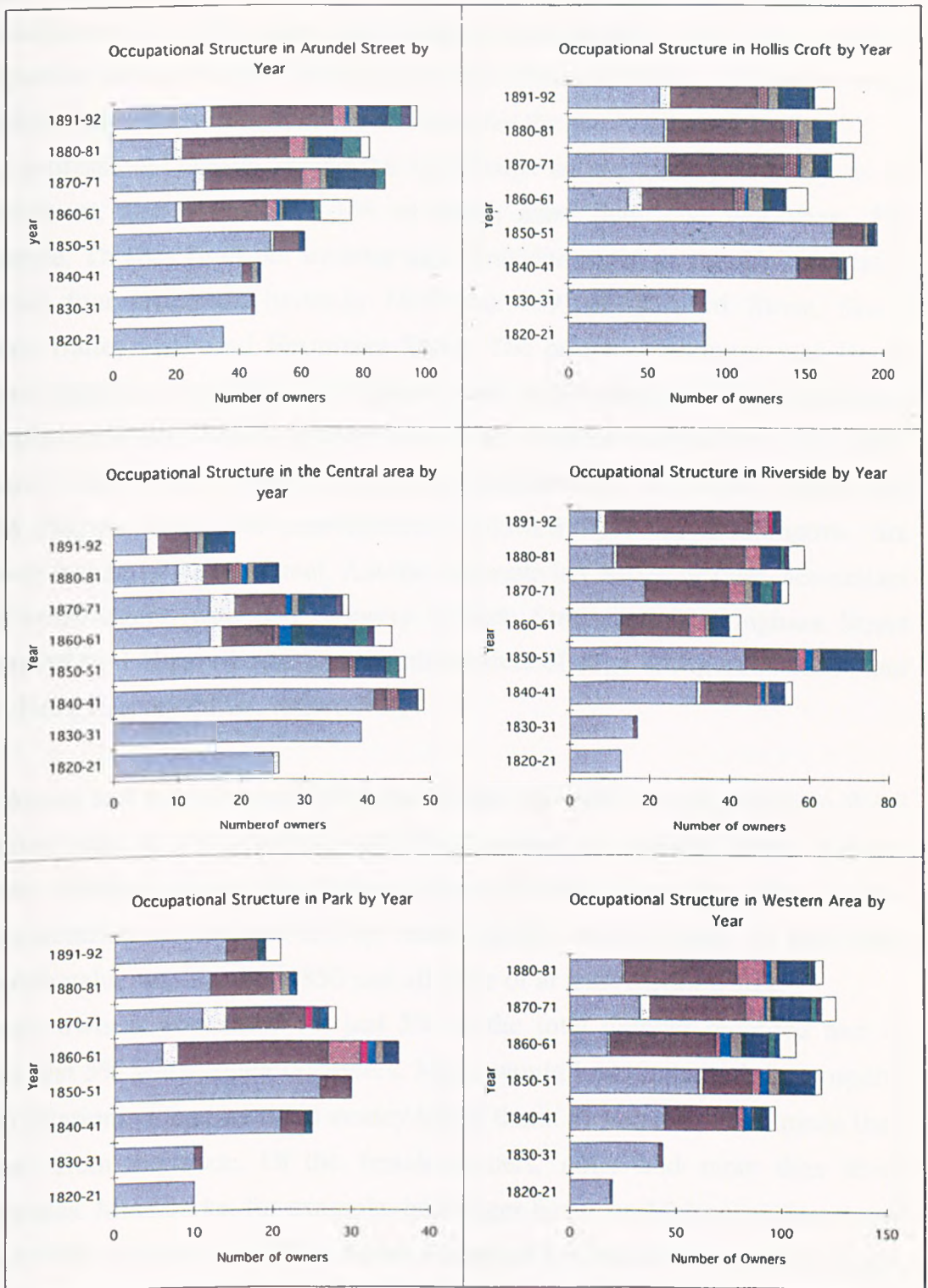


Figure 9: The occupations of workshop owners by area and year.



1860 owned two properties on Sheldon Street, as well as those in Brammall Lane and Monmouth Street. These were rented out to a spring knife manufacturer, two file cutters and a razor manufacturer. Only two of these properties were owned by William Cocking before his death. The others were likely to have been bought as investments for the deceased's relatives.

The professional classes, seeing the workshops of the cutlery industry as an investment, also owned, in 70% of cases, more than one workshop. For example, Thomas Branson, solicitor and Consular agent to the United States, owned four properties between 1840 and 1891 in Radford Street, South Street, Bailey Lane and Hermitage Street. The principal occupier was Henry Dixon Marples, manufacturer of joiners tools, in Hermitage Street and Robert Marples in South Street, a predecessor of the modern Marples firm. The other tenants were James Ashberry, penknife manufacturer, in Radford Street and John Holmes, edge tool manufacturer, followed by John Boddington, fire shovel maker, in Bailey Street. Another example is Charles Nodder, accountant and estate agent, who had property in Bath Street and Rockingham Street occupied by J Howarth and Son, manufacturers of edge and garden tools, and J.A. Horton, ivory cutter, respectively.

No owner had more than six properties at any one time. The largest were W&S Butcher who in 1880 had six properties located in Arundel Street, Charles Street, Furnival Street and Union Lane. All were used by them in the manufacturing of steel and articles related to the cutlery trades. In total their rateable value was nearly £1850 and all were of at least medium size.

Female owners accounted for just 5% of the total number recorded and of these just 5% were owner occupiers. Many would have inherited the property from relations or had invested money left to them. Few would have made their money from the trade. Of the female owners, none had more than three properties. Mrs Clarke, for example, had a beer house on Maltravers Street and owned the workshops in Beet Street occupied by Joshua Gray, blade forger, number 268 in 1870-71, and Albert and Joseph Bradshaw, spring knife manufacturer, number 270, also in 1870-71. Perhaps this woman had seen more ways than one of making money from the cutlers of the town, especially on Saint Monday, when local folklore suggests that the 'little mesters' spent their time in the public houses!

This section has identified that cutlers and those occupied in related industries, where occupation could be identified, owned approximately a third of all the buildings related to the industry. The evidence from the building registers suggests that in some cases cutlers were the instigators of building, but speculative ventures accounted for the majority of building work connected with the Sheffield trades, and were more commonly begun by the building trades and by other occupations identified within the town. Those investing in property who were not associated with the Sheffield trades did so for income, possibly considering this safer than placing money with early banks.

Where Did the Capital Come From to Erect or Purchase the Workshops of the Cutlery and Related Trades?

Very few cutlers or builders could have afforded to erect or purchase a property without some form of outside help. This section considers the various forms of credit available to the investors in the workshops of the cutlery and related trades both 'internal sources' which came from within the firm or from family members, and 'external sources' from those not connected directly with the business, such as banks and building societies. It also examines the type of capital provided by each of the sources and whether it was aimed at purchasing fixed capital assets or designed to be 'working capital' injected into the firm when there were problems with cash flow.

A) Internal Sources.

Loans from family members

Personal sources were the most likely form of credit for the majority of those investing in property connected to the cutlery trades. 'In the nineteenth century the family remained the basis for most economic activity.'⁵⁷ The evidence for loans between family members is however difficult to find and no direct evidence has been found for it in the cutlery trades, mental notes and chitties remaining invisible in the archaeological and documentary evidence. Crouzet however argued that this type of finance played no direct part in the

⁵⁷ Davidoff, L. and Hall, C. 1987 (reprinted 1994) **Family Fortunes: Men and Women of the English Middle Class 1780-1850** Routledge, London p 32

financing of industry but acted as a useful source of supplementary capital when business was slack.⁵⁸

Partnership

An alternative to loans was the formation of partnerships both within the family and with outsiders. At the end of the nineteenth century 50% of firms identified in the rate books were made up of partnerships. Most partnerships were kept within the family, the most common being father and son, brothers, uncles and nephews. 'In joining a partnership, the pattern seems often to have been for the father or senior relative to provide a sum for the son to buy into the enterprise, which the junior would then be required to pay back with interest out of his share of the profit.'⁵⁹ Alternatively sons were often given the option to buy into the family firm with the resources left to them on the death of a relative. By analysing the firms' names identified in the rate books some assessment can be made of partnership arrangements, although no evidence is given for the specific financial arrangements made. Table 2 shows that the number of family partnerships generally increased throughout the

Date	Family Partnerships
1820-21	8.33%
1830-31	12.10%
1840-41	10.64%
1850-51	9.96%
1860-61	18.53%
1870-71	20.22%
1880-81	26.08%
1891-92	30.29%

Table 2: The percentage of Family partnerships in the Sheffield cutlery industry recorded in the rate books during the nineteenth century.

⁵⁸ Crouzet, F. 1990 Britain Ascendant, Comparative Studies in Franco-British Economic History Cambridge University Press, Cambridge p185

⁵⁹ Davidoff, L. and Hall, C. 1987 (1994) op cit. p218

nineteenth century so that by the 1890s they accounted for nearly a third of all the cutlery firms in business. Occasionally, on the death of the father, the partnership of mother and son was formed. An example is Rhoda Rodgers and Son, cutlery manufacturers, in Lambert Street, who took over the business of Charles Rodgers when he died in the 1860s. Data from the rate books shows that 45% of family partnerships were also owner occupiers.

Where family partnerships could not be formed, others were brought into the business from friendship circles, often by marriage, although without a detailed search of the parish records this would be difficult to prove conclusively for specific firms. It has been argued that in some cases young entrepreneurs also had money to buy into partnerships, although in the majority of cases kinship and family provided the links.⁶⁰

Date	Partnerships
1820-21	11.46%
1830-31	14.92%
1840-41	9.57%
1850-51	10.5%
1860-61	15.37%
1870-71	15.21%
1880-81	18.04%
1891-92	20.99%

Table 3: The percentage of non-family partnerships in the Sheffield cutlery industry, as recorded in the rate books 1820-1891.

The evidence from Sheffield (Table 3) shows that by the end of the nineteenth century 21% of firms were partnerships drawn from outside the direct family circle. Some of the better known included Brookes and Crookes, who formed a partnership in 1859 as manufacturers of spring-knives and dressing case instruments, setting up business together in St Phillips Road;⁶¹ Thomas Ellin and Co, cutlery manufacturers, was formed by 1797 when Thomas Ellin

⁶⁰ *ibid* p250.

⁶¹ Tweedale, G. 1996 The Sheffield Knife Book Hallamshire Press, Sheffield p161

formed a partnership with Joseph Oldale, whose daughter he had married;⁶² and Needham, Veall and Tyzack took over John Taylor's firm, established in the 1820s in St Phillips Road, and the trade mark 'Taylor's Eye Witness.' By 1856 the firm had been taken over by Thomas Brown Needham who in 1876 joined forces with James Veall and moved to Milton Street where in 1879 Walter Tyzack, the Abbeydale scythe manufacturer, joined the firm.⁶³

The fact that more family partnerships existed than external ones reflects the 'clannish and proud' nature of the industry and the fact that 'many of them refused to let strangers into their businesses'⁶⁴ a feature which existed in many industries throughout the country.

Partnerships were also established in the building industry during the nineteenth century. Pollard writes 'in Sheffield the bricklayer, joiner, and painter, some of them unable even to write their names, combined to run up buildings on their few hundred pounds capital as speculation.'⁶⁵ Thomas Sambourne for example, one of the largest speculators in Sheffield in the eighteenth century, carried out 34 land transactions jointly with his mother. One example was a workshop, warehouse, stable and several houses on Howard Street, now the site of the Howard public house, the deeds for which survive in Sheffield Archives.⁶⁶ In the nineteenth century, examples include Hardy and Duke, joiners and builders, who built a workshop in Watery Street and J&H Goulder who erected houses and shops on Infirmary Road.

Plough Back

Once a firm had been established capital levels could be maintained by 'ploughing back' profits into the firm. This system had many advantages over applying for external funds in order to expand. Firstly it maintained the firm's independence and the family's status;⁶⁷ and secondly it reduced the risk of losing the property and the firm. Crouzet writes: 'the widespread practice of systematically ploughing back profits, is of course, related to the specific

⁶² *ibid* p186

⁶³ *ibid* p234

⁶⁴ Gille, B. 1971 (trans. Greaves, R.) The Fontana Economic History of Europe Vol. 3 Section 4: Banking and Industrialisation in Europe 1730-1914 London, p27

⁶⁵ Pollard, S. 1959 A History of Labour in Sheffield Liverpool University Press p 20

⁶⁶ ACM SD26 (see also Flavell N 1996 op cit. p339-343)

⁶⁷ Pollard, S. 1959 op cit. p 30

psychological attitudes and a certain pattern of mentality; it is largely due to the frugality of the pioneers of the industrial revolution.’⁶⁸

In the dual or multiple occupation economy of rural areas, the use of plough-back was essential. In places such as Stannington, Dungworth and Ecclesfield, referred to in Chapter One, there were examples of farms and smithies existing side by side. The two industries could be used to supplement each other and surpluses saved to invest in the future of either. Hudson found in the textile industry that dual occupation was an important feature, as it allowed small firms to raise capital on the back of their farming assets.⁶⁹ These small rural firms, however, have left no financial records and there is no precise evidence for the rural cutlery industry of money from farming being used to build a new workshop. However, plough-back was not the only option open in rural areas, and Holderness has suggested that like their urban counterparts firms had access to credit when required.⁷⁰

In urban areas, by the middle of the nineteenth century, the likelihood of plough-back can be assessed by analysing the profits quoted by firms in banking records. Those firms identified in the Sheffield Union and Sheffield and Hallamshire banks record profits of between £500 and £100,000 a year. By comparing the profits in Figure 10 with those in Table 1 for the cost of erecting a new workshop during this period, it is clear that, based on these figures, these firms could have afforded the erection of at least small scale workshops or extensions to their premises without having to borrow from external sources. However as the banking records show, the majority of them were quoting profits to secure loans needed for working capital to solve cash-flow problems and in reality profits were nominal figures to which the firm had no ready access. ‘Cash-flow was the most serious problem even for professional men made vulnerable by long periods of waiting for bills to be settled.’⁷¹ Plough-back, then, appears mainly to have been used to finance the

⁶⁸ Crouzet, F. 1990 op cit. p 188

⁶⁹ Hudson, P. 1983 *Landholding and organisation of Textile manufacture in Yorkshire Rural Townships, 1660-1810*. In Maxine Berg ed. *Manufacture in Town and Country* Cambridge University Press p265

⁷⁰ Holderness, B.A. 1976 *Credit in English Rural Society before the nineteenth century, with special reference to the period 1650-1720* *The Agricultural History Review* Vol. 24 pp97-109

⁷¹ Davidoff, L. and Hall, C. 1994 reprint op cit. p 208

expansion of the firm in terms of working capital, rather than for buying fixed assets such as buildings.

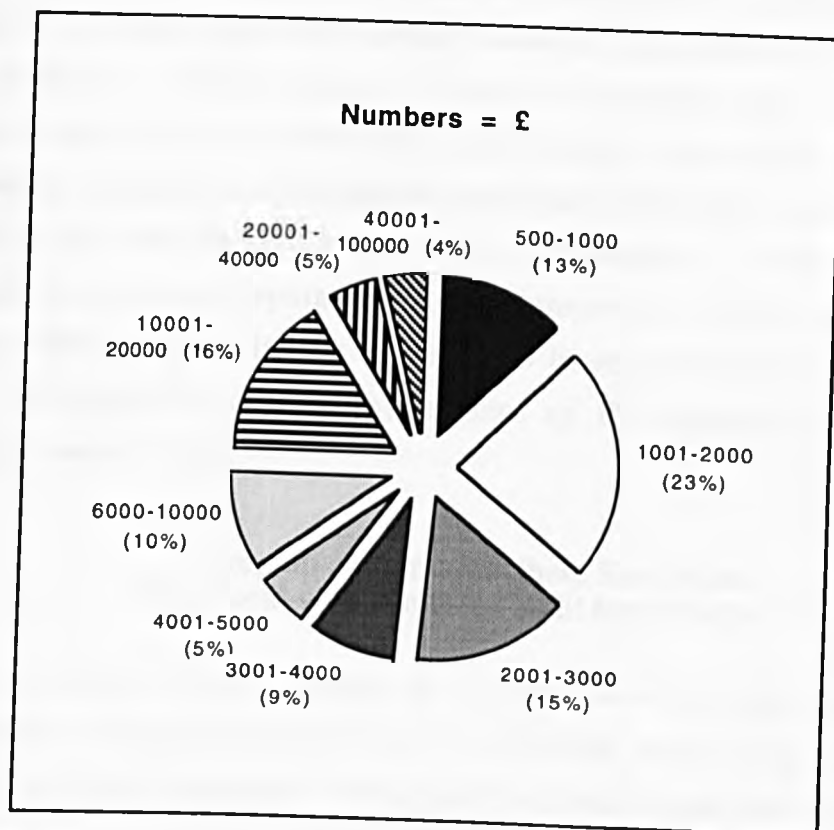


Figure 10: Profits (in £) quoted by firms to the Sheffield and Hallamshire and Sheffield Union Banks 1844 to 1888 in the course of applying for loans and the percentage of firms in each financial bracket.

B) External

If capital could not be raised from within the firm or the family for expansion, other sources had to be sought, outside. The next section considers external sources of capital available to the cutlery industry in the nineteenth century.

Personal Loans

Cooney recognised that foreign investment or the taking of government or railway stocks and shares was preferred to loaning money to the building industry.⁷² However when returns on stocks failed, other outlets for investment were sought such as partnership arrangements and loans.

⁷² Cooney, E.W. 1960 *Long Waves in Building. The British Economy of the nineteenth Century. Economic History Review* 13(2) p 262.

Personal loans to a member of the firm at a fixed rate of interest were often considered safer than investing in the business. A loan made to the firm, for a share of the profits, was regarded in law as buying in to a partnership, and thus, like in a formal partnership meant becoming 'committed as responsible for any debts the concern made.'⁷³ Those with connections within their religions found it easy to secure loans and Mathias argues that 'this is one reason which explains how the Quaker and Non-Conformist communities and cousinhood has such tremendous resilience in business.'⁷⁴ Certainly with such loans the personal reputation of the entrepreneur and his family were important. Within such religious communities these would have been well-known. An eighteenth century rhyme sums up the essentials required for obtaining personal credit.

'Keep up appearances, there lies the test
The World will give thee Credit for the Rest.'⁷⁵

The only documents relating directly to personal loans are where mortgages were involved. These are recorded by the Norfolk estate lease books, but workshops are rarely mentioned. When land was leased from the estate it was invariably mortgaged on the same day or soon afterwards. Cutlers taking leases, usually for houses, mortgaged them with friends or others in the trade, in this way releasing vital capital that could be used as 'working capital' for their business.⁷⁶

Benjamin Bell, cutler, for example, took a lease for 1062 square yards in Trippett Lane containing 'a messuage or tenement in which he dwelt and a smithy with a chamber over it and a small cast steel furnace for 99 years at £3-10-0 half yearly.' Attached to the lease were details that 'T. Birks, of Sheffield, butcher, hath this eighteenth day of August 1778 paid unto the above mentioned Benjamin Bell, the sum of £150, and that he is to have assigned the above mentioned premises by way of a mortgage for securing the said sum of £150 and lawful interest.'⁷⁷

⁷³ Mathias, P. 1993 (reprint) 2nd edition The First Industrial Nation Routledge, London, p145

⁷⁴ *ibid* p 146

⁷⁵ Quoted in Davidoff, L. and Hall, C. 1987 (reprint 1994) *op cit.* p 208

⁷⁶ Hudson, P. 1986 The Genesis of Industrial Capital Cambridge University Press p101

⁷⁷ ACM S383 Sheffield Archives.

In a similar way Richard Ibbotson, cutler, of Sheffield Park, took a lease on 300 square yards for 99 years at £1-5-0 per annum. 'Richard Ibbotson, having borrowed the sum of £24 of John Fox of Sheffield Park, cutler, this lease when executed must be assigned to the said John Fox for securing the principal interest.'⁷⁸

Joseph Swan, cutler, Gibraltar, Sheffield, mortgaged his lease of 475 square yards for 99 years to J Ibbotson:

'Memorandum that the above named J Swan, having the 22nd Day of January 1782, borrowed of and from J Ibbotson of Whitley Wood, in the Parish of Sheffield, the sum of £35 and hereby agrees that so soon as a lease or demise of premises mentioned...shall be granted to him to assign the same unto the said J Ibbotson by way of a mortgage for securing the said sum of £35 and interest at £5 per cent per annum.'⁷⁹

Five percent per annum is the most common figure stated within the Norfolk lease books for a personal loan and was common throughout the country. By the end of the eighteenth century however, the Usury laws, which restricted interest to a maximum of five percent, were largely dead. It was also comparable to the maximum interest returned on government stocks in the eighteenth and nineteenth centuries.⁸⁰

Some cutlers went further afield for their loans. Tim Twybill leased 392 square yards in Garden Street for 99 years. The memorandum attached reads:

That in consideration of the sum of £260 lent to me by *Titus Salt* of Hunsfleet Carr in the parish of Leeds, merchant, I do hereby agree that so soon as the lease or demise above contracted for shall have been executed to assign the same unto said Titus Salt by way of Mortgage for securing the said sum of £260 and lawful interest.⁸¹

⁷⁸ ACM S383 (Lady Day 1791) Sheffield Archives.

⁷⁹ ACM S383, Sheffield Archives.

⁸⁰ Mathias, P. 1993 reprint 2nd edition op cit. p 133 and Tunzelmann, G.N. von 1993 *Technological change in Industry during the early Industrial Revolution* In Patrick, K. edits **The Industrial Revolution and British Society** Cambridge University Press, Cambridge p 235

⁸¹ ACM S383 29th January 1782.

R Balgarnie records how the Salt Family, ancestors of Titus Salt of Saltaire⁸², had originated from Sheffield. Titus Salt, whitesmith, married Sarah Taylor in 1763, and deeds record that this entitled him to freehold property in 'Cherry Square.'⁸³ In his will of 1802 he is described as an ironfounder at Hunslet Moor, near Leeds. This property was conveyed to him by a Reverend Alderson in 1755. The connection between Tim Twybill and Titus Salt was probably from a friendship formed during the Salt's time in Sheffield or even through a marriage. Cutlers' Company records show eight Salts apprenticed in Sheffield between 1762 and 1782.⁸⁴

Women

As well as men lending money, women, whether they were family members or independent outsiders, also played an important part in the financing of industrial enterprise. Often they had inherited lump sums on the death of a relative.

W Rimmer said that he found 'old ladies, rich widows, or spinsters were a very convenient source of capital'⁸⁵ and Davidoff and Hall have remarked that among the lower middle-classes, 'women were constantly used as sources of small sums to start off a business or as credit.'⁸⁶ They were also regarded as the creators of personnel whether through childbirth or through bringing new partners into the firm through marriage. If they did not invest in annuities the only other option was property investment.

Due to the lack of detailed records for smaller business there is no evidence of specific cases within the cutlery industry for women loaning money. However within the Fairbank correspondence papers two sisters are recorded lending money to a tanner, D. Crow.⁸⁷ A letter was written from Sarah and Anne Broadhead asking Fairbank's advice on where to invest it. The first letter, CP45 (59) dated the 27th October 1833 states that it was 'a serious loss

⁸² To be precise, the Titus Salt that made the loan was his Grandfather. Balgarnie, R. 1970 Sir Titus Salt: Baronet Brenton Publishing Settle p6-7 (The author wishes to thank Bradford Local Studies Library for the initial information on sources)

⁸³ Probably Cheney Square.

⁸⁴ Cutlers' Company Database created by J Unwin and the Cutlers Research Group at the University of Sheffield

⁸⁵ Quoted in Crouzet, F. 1990 op cit. P185 (Rimmer, W. Marshall of Leeds: Flax Spinners p36-37)

⁸⁶ Davidoff, L. and Hall, C. 1994 (reprint) op cit. p 279

⁸⁷ Letters are in the CP section of the Fairbank Collection. CP 45 nos. 59,65,67,69,70,72,73,74.

having the money in the bank.' Fairbank made various suggestions, but his initial idea of investing it in property on the moors was rejected on the grounds that 'it would not be a safe investment if there should be a repeal of the Corn Laws it would render that property almost unsaleable, as such we must decline the mortgage' ⁸⁸. A later letter from the two women, not having heard from Mr. Fairbank, states that they were thinking of advertising the sum of £1000 in the local newspapers. 'Had we not better advertise in one of the Sheffield Papers, a thousand pounds to be lent on good security, perhaps it might produce applications, by which we might obtain five per cent, on property in or near the town' ⁸⁹. They also state in this letter some urgency in withdrawing the money from the bank. 'We wish to have something in readiness by the 4th of the 3rd month, the time when the money will have been one year in the bank, it does but leave five weeks to do business in.' ⁹⁰

Fairbank then sent another unknown proposal which was equally unacceptable: 'we have considered the subject and think it is property that would not suite us, as we know the workmanship is bad, and the back tenants very bad payers, some of the houses never have been occupied.' ⁹¹

Later they relayed to Fairbank that they had met David Crow and agreed to lend him £300 on land at Owlerton which, as a draft reply by Fairbank records, amounted to 3082 square yards but had no buildings on it. Sarah and Anne reply to that letter saying that they had again met with D. Crow and that he had informed them that he had built a 'good stone wall and planted it round with choice fruit trees and he intends to commence building a house and tanyard with the whole of our money on the spot this spring, so that we hope it will be a safe investment.' ⁹² A note at the bottom of the letter in Fairbank's hand records that D. Crow did pay 5% on the £300 half yearly from March 1834.

The story of these two women with money to invest and the process through which they went to find a suitable investment, while not relating to the cutlery or building industries specifically, provides a valuable clue to the availability of personal finance in the early nineteenth century. It also emphasises that

⁸⁸ CP 45 (65)

⁸⁹ CP 45 (69)

⁹⁰ *ibid.*

⁹¹ CP45 (72)

⁹² CP 45 (74)

some considered investment in buildings to be safer than keeping money in the bank.

Landlords

The major landlords, the Duke of Norfolk, Earl Fitzwilliam and the Church Burgesses, do not appear to have acted as providers of credit. Nunn argues that the capital input by the landlord was minimal. The street layout and drainage was provided but 'almost all the capital investment in the buildings came from the entrepreneur in industry and the house builder whether speculative or otherwise. Thus the ground rents provided an income to the landlord which approximated closely to pure rent.'⁹³ The only concession that seems to have been made is on Fitzwilliam's estate in 1823 when he received a letter from his steward regarding building lots. Chalklin quotes 'the applicants are merchants or traders who find it inconvenient to withdraw so much capital from their trade and they request me to ask if your Lordship would consent to advance them one half of the money expended on the premises upon mortgages at 5%' The reply came 'I think an arrangement of this nature would bring the land to the market'⁹⁴ This would imply that Fitzwilliam was more concerned with raising capital from the land than providing it for the erection of new industrial premises.

The major landlords can therefore be disregarded as suppliers of finance for building purposes and other sources sought.

'Capital Clubs' and Friendly Societies

These were known about, at least in Birmingham, during the later part of the eighteenth century. They were voluntary societies which provided enough capital for small producers to set up on their own account.⁹⁵ In Sheffield similar clubs appear to have existed.

Between 1778 and 1786 the lease books record 22 mortgages given by societies to cutlers, which ranged from £20 to £150. These societies or clubs

⁹³ Nunn, P. 1985 The Management of some South Yorkshire Landed Estates in the eighteenth and nineteenth centuries, linked with the central economic development of the area (177-1850), Unpublished PhD Thesis, University of Sheffield

⁹⁴ Chalklin, C.W. 1974 The Provincial towns of Georgian England- A study of the building Process 1740-1820, Arnold London p151.

⁹⁵ Davidoff, L. and Hall, C. reprint 1994 op cit. p249.

included the Compassionate Club, the Young Society, the Cutlers' Society and those societies held at the Black Swan Inn, Samuel Fishers, and Cammsons. Some may have been established as friendly societies, especially those such as the Compassionate Club or Cutlers' Society, others may have been 'capital' clubs as in Birmingham. The fact that they have left no records means that the only evidence for them is in the memoranda in the Norfolk lease books. For example:

'Memorandum that ... J. Drabble having this day 22nd September 1781, borrowed of G Owen of Sheffield, pattern maker, master of the Cutlers Society, the sum of £20 hereby agrees that so soon as the lease of demise of the premises⁹⁶ mentioned in the contract,⁹⁷ shall be granted him to assign the same unto G Owen in trust for the same society by way of a mortgage for securing the said sum of £20 and interest at £5 per centum per annum'⁹⁸

Another example is the loan made by the Young Society to William Smith, scissor smith, secured by his property at Lee Croft in 1783.

'Memorandum that the above named William Smith, having this day borrowed of and from J Gray of Sheffield, cutler, in trust for the Young Society, the sum of £130 hereby agrees that so soon as the lease or demise above contracted for shall have been executed to assign the same unto the said J Grey by way of a mortgage for securing the sum of £130 and interest at the rate of £4 or 10% per annum.'⁹⁹

Although these are the only societies which appear in the lease books, other societies existed in the town.¹⁰⁰ In 'Notes and Queries' dated 1899 a list of 35 societies is given, recording those that took part in a procession of Friendly Societies in October 1797 (Table 4).¹⁰¹

These clubs provided a source of capital similar to private loans, although the money was more likely to be used as working capital than for building or purchasing new workshops. Rates of return on society loans were

⁹⁶ It is not recorded as to whether these were domestic or industrial, but like the personal loan, the mortgage was probably seen as a way of bringing capital into the firm.

⁹⁷ 202 square yards in Broad lane.

⁹⁸ ACM S383, Sheffield Archives.

⁹⁹ Eighteenth March 1783 ACM S383 Sheffield Archives.

¹⁰⁰ Flavell, N. 1996 op cit. p237 quotes Eden as stating that there were 55 societies in the town in 1786

¹⁰¹ Yorkshire Notes and Queries Vol. 1 June 1899

Name of Society	Date of Establishment
The Tailors Society	20th September 1720
Filesmiths' Society	2nd March 1732
Cutlers' Society	6th April 1732
Shepherds' Society	July 1732
Old Unanimous Society	12th April 1733
Union Society	4th January 1740
Carpenters' Sick Society	5th November 1740
Society depending on Providence	1st September 1741
Grinders' Society	16th March 1748
Bishop Blaze Club	4th July 1750
Old Gentlemen's Club	5th July 1750
Indefatigable Union	15th April 1752
United Society	19th May 1752
Reformed Society	1752
Laurel United Society	6th September 1753
Providence Society	1754
Friendly Society	17th July 1756
Careful Society	25th January 1758
Young Men's Sick Society	12th February 1759
Green Forester Society	1759
Tradesmen's Society	10th July 1761
Tradesmen's Society	1762
Braziers' Society	21st February 1765
Young Society	22nd February 1767
Half- Boot Society	23rd February 1767
Masons' Society	21st April 1766
Waterman's Society	4th November 1768
Benevolent Society of Tradesmen etc.	15th July 1773
Friendly and United Society	21st February 1780
Royal Union Society	9th August 1782
Young Royal Society	4th September 1783
Revolution Society	1788
Prince of Wales' Society	8th July 1790
Scissorsmith Society	3rd April 1791
Loyal Independent Volunteer Sick Club	10th November 1794

Table 4: List of Friendly Societies that paraded through the town on 4th October 1797. (Yorkshire Notes and Queries Vol 1 1899;31)

similar to personal loans, the average being 5% per annum, although the example above states that up to 10% could be gained in some cases.

In the nineteenth century, clubs such as these developed to become building societies which can be identified, not by their own records, but through banking records.

Building Societies

The records of the Sheffield Union and Sheffield and Hallamshire banks included references to the 6th-9th Patriotic Club, the 21st-25th Commercial Club, Mr. Nodde's Club, the Industrial Permanent Building Society, the Springfield Land Society and the Yorkshire Building Society. In all of these cases the deeds of the property held by the building societies were deposited to secure loans either to develop businesses or pay off existing mortgages. For example, the Davenport Brothers, saw and machine knife manufacturers, requested a loan from the Sheffield Union Bank on the 17th October 1878 for £500 to 'enable them to pay off the claim of the 12th Patriotic Building Society (£198) and to develop their business.'¹⁰² In some cases it provided security for a second mortgage such as that applied for by Reany and Wood, edge tool, joiners tool and tobacco knife manufacturers. 'William Reany of Bernard Street, taking the business of the late Reany and Wood, to have a credit of £500 provided he gives satisfactory security on half the sum or a second mortgage for £500 on the premises in Bernard Street now under mortgage to the Yorkshire Building Society'.¹⁰³

Other building societies were formed in the nineteenth century for the purpose of building working class housing. The society would rent land cheaply and then each member would be responsible for building their own house¹⁰⁴. Many areas owned by the societies were kept strictly residential and in one instance in Heeley the rules clearly specified that there were to be no steam engines, grinding wheels or any other manufacturing, hotels or tea gardens built on the plots.¹⁰⁵ In Walkley twelve societies were formed and the completed estate had 3000 holders on 292 acres of land, it became known as the 'Working man's West End'.¹⁰⁶

It is difficult to ascertain whether cutlers would have used building societies to raise the capital necessary for erecting new premises. No detailed records survive of building society loans, but on the basis of the Walkley evidence it is unlikely money was lent to build industrial property.

¹⁰² Midland Bank Archives (MBA) AD4 under minutes for 17/10/1878

¹⁰³ MBA AM9 under minutes for 12/3/1862.

¹⁰⁴ Pollard, S. 1959 op cit. p 22-23.

¹⁰⁵ W.D. 674 Sheffield Archives refers to the Sheffield Reform Freehold Benefit Building Society.

¹⁰⁶ Pollard, S. 1959 op cit. p 30

Banks

The early banks 'did not create capital, but they stimulated the circulation of capital, handed it in the right direction and harmonised the uses to which it was put.'¹⁰⁷

Although banks did not exist in Sheffield until the 1770s some people acting as bankers were known. Benjamin Graves for example took a deposit from a Francis Sitwell, attorney, of £2130 in 1731 and a further £900 in 1736. He paid interest rates at 2.5% on demand and 4% at six month notice.¹⁰⁸ Vincent Eyre described him in a letter as being 'Mr Benjamin Greaves, a great banker at Sheffield.'¹⁰⁹ Other contemporaries issuing bills included Gregory Wigfall, Matthew Lambert, linen draper, Joseph Matthewman, factor, John Roebuck, merchant and factor, Joseph Broadbent, merchant and Elizabeth Parkin, also a merchant.¹¹⁰ The Old Sheffield bank was formed by Hannah and George Haslehurst in 1770 and was soon followed by the establishment of Walker, Eyre and Stanley.¹¹¹ Thomas Sambourne, for example, borrowed money from Eyre and Stanley to fund his speculation in Carver Street, Howard Street and Alsop Fields. In 1778 Benjamin Roebuck's bank collapsed as a result of family connections with the Carron Ironworks which suffered financial problems in the same year.¹¹² The collapse of Parker, Shore and Co's bank in the 1840s shook the industrial and commercial classes of the town and as a result, Nunn suggests that the take-up of 99-year leases was at 20% of the level of eight years earlier.¹¹³

The role of banks throughout the late eighteenth and nineteenth centuries appears to have been for the provision of credit.¹¹⁴ Habakkuk considered that 'English Banks concentrated on the provision of working capital because that

¹⁰⁷ Gille, B. 1791 op cit. p15

¹⁰⁸ Flavell, N. 1996, p247

¹⁰⁹ *ibid* p247

¹¹⁰ *ibid* p247

¹¹¹ *ibid* p259

¹¹² Nunn, P. 1985 The Management of some South Yorkshire Landed estates in the eighteenth and nineteenth centuries, linked with the central economic development of the area (1700-1850) Unpublished PhD thesis University of Sheffield p357

¹¹³ *ibid* p357

¹¹⁴ Chalklin, C.W. 1974 op cit. P308, Pressnell, L.S. 1956 Country Banking in the Industrial Revolution Oxford Clarendon Press p233, Jenkins, D.T. 1975 op cit. p205.

is what industry needed; if there had been a large unsatisfied demand from industry for fixed capital, financial institutions would, with relative ease, have adapted themselves to meet this need'.¹¹⁵

The discounting of bills and issuing of bills of exchange was one way of creating credit. Acting like a modern cheque, payments were deferred until the bill had been discounted, thus releasing cash which could be used elsewhere. The best description of how the system worked is given by Edwin Green:

'First, a merchant (A) wished to make a payment to a trader (B) in a distant town or country. A local firm (AA) had an account with a firm (BB) in the relevant town or country. At A's request, AA would therefore write an order (the bill of exchange) to BB, authorising payment from BB to B. In this fashion A would pay, and B would collect from their local banking firm.'¹¹⁶

Mathias suggests that without the facility to discount bills, finance from the firms' profits would have had to be used and thus 'the rate of expansion would have been cut down.'¹¹⁷

In order to obtain permission from the bank to discount bills of exchange or to obtain credit the respectability of the firm had to be proved, again emphasising that 'personal reputation .. [was].. the key to survival'.¹¹⁸

The directors of the banks were businessmen themselves, and would have heard of firms' reputations from within their own communities. Newton has shown that the Board of Directors for the Sheffield Union Bank included such men as Richard Groves Holland, iron and steel merchant of the firm R.G. Holland, Edward Vickers, steel merchant and manufacturer of Naylor Vickers and Co and William Smith, steel merchant and manufacturer of the Hallamshire Steel and File Co. Ltd. Other members of the Board included George Bassett, confectioner, Francis E Smith, share broker, Francis Patrick Smith, solicitor, and Hugh Wood, surgeon.¹¹⁹

'The list of occupations implies that members of the Sheffield Union Bank Board were in a position to make knowledgeable judgements concerning the credit worthiness of manufacturing firms to which they lent money, in terms of both their own experience and a network of industrial

¹¹⁵ See quotes in Chalklin, C.W. 1974 op cit. p308 and Jenkins, D.T. 1975 op cit. p 205.

¹¹⁶ Green, E. 1989 **Banking: An Illustrated History** Phaidon, Oxford p 16.

¹¹⁷ Mathias, P. 1993 reprint 2nd edition op cit. p156.

¹¹⁸ Davidoff, L. and Hall, C. 1994 reprint op cit. p208

¹¹⁹ Newton, L. op cit. p58

information that would have existed at least implicitly amongst manufacturers in an industrial city like Sheffield'.¹²⁰

This is in direct contrast to the view of Gille, who suggests that the fear of eviction by those taking bank loans was a result of the bankers knowing nothing of the industrialists problems. 'Industry required a special knowledge, mainly technical knowledge, that the bankers neither had nor were capable of appreciating or acquiring.'¹²¹

In the records of the Sheffield Union and Sheffield Hallamshire Bank¹²² there are many cases where the discounting of bills was refused because of a doubt about their origin. The bills presented by William Brooks, tool maker, for example, who applied for an account in 1863, were regarded as 'not of good character.'¹²³ In another instance Frederick Stone of Silver Street, shoe knife maker, presented too many foreign bills as security.¹²⁴ In some cases, accounts on which credit could be drawn were refused, but the discounting of bills was allowed.

Direct loans to firms from banking establishments helped to maintain cash flow in times of hardship. William Brookes and Son, manufacturers of edge tools, engineers' tools and cutlery, applied on February 1st 1865 for an advance of £300 for five weeks beyond their credit of £800, as 'Edward Brookes, one of the firm has broken his leg which prevents him from taking his usual journey'.¹²⁵ In another case Joseph Fenton and Sons, merchants of pen, pocket, table and butchers' knives, applied for credit because 'the peculiar conditions of trade, which with considerable advance in process has been attended by reductions in credit which in many items such as iron, coal and ivory has been considerably shortened and even had to be done for cash. These extraordinary conditions, first an increase in prices was not

¹²⁰ *ibid.* p 58.

¹²¹ Gille, B. 1971 *op cit.* p 27.

¹²² These two banks were chosen for further study because of the ease of access to the records. The author wishes to thank L Newton for her help in accessing the collection by lending her record cards relating to cutlery firms 1850 to 1870.

¹²³ MBA AD3 8/7/1863

¹²⁴ MBA AD3 10/9/1862.

¹²⁵ MBA AM9 1/2/1865. The journey referred to is the sales journey undertaken by the firm's traveller each fortnight or month to sell the firms goods to existing and new clients. In some instances this took them all round the world.

accompanied with special alteration in terms we bought somewhat heavily in certain things and these items falling due with having to pay so much has disturbed our calculations temporarily'. The terms were agreed and credit was given up to £10,000 because the directors saw that 'their business on the continent is doing well, indeed the whole connection is of the highest class and most sound and profitable in every respect'.¹²⁶ The fact that the directors recognised the respectability of the firm emphasises the interest that they took in their clients. In the case of Boswell Brothers, file forgers at Cypress Works, the directors of the Sheffield Union declined to give credit of £75, as the £50 guaranteed security given by a 'minister', Reverend LE Ellis, was not considered 'eligible'.¹²⁷

Almost all loans had to be secured. Property deeds and leases, like those mentioned in the Norfolk records, were one of the most popular forms of security, along with mortgages and second mortgages. There were also personal guarantors, again usually family, friends and acquaintances of those who applied. Only one example was found of a commercial agent acting as a guarantor, John Edey, financial agent, on behalf of Joseph Peace, and even then this may have been a friend or acquaintance.¹²⁸ Guarantees were also given by the applicants in the form of money or promissory notes. Pressnell has suggested that these were regarded as claims for income rather than as a means of making some payment.¹²⁹ In other words their provision as a guarantee would have been nominal. Another popular form of security was shares in railway companies such as the Charlton and Dores Railway, the Midland Railway and the Lincolnshire Railway.¹³⁰ Other shares included those in water and gas companies, and even shares in Grimsby Docks,¹³¹ as well as in the bank itself. Finally insurance and life assurance policies were occasionally used to secure loans.

Pearson's work on life assurance policies has shown that many were issued in people's names other than the holder, usually in another family member's,

¹²⁶ MBA AM12 16/4/1873.

¹²⁷ MBA AD4 9/2/1882

¹²⁸ MBA AD3 22/4/1843

¹²⁹ Pressnell L.S. 1956 op cit. p 138.

¹³⁰ MBA AD3 18/12/1869, AD4 16/12/1880, AM5 31/1/1849.

¹³¹ MBA AM5 31/1/1849.

which 'implies other motives than family savings.'¹³² The assurance firm assessed in his research, The Law Life Assurance Society (LLAS) suggested in its prospectus that life insurance policies should be considered as a means of: 'raising money on loan, where personal security can be offered;...securing the eventual payment of doubtful debts due to individuals or bodies of creditors;...securing to parents the return of capital embarked in business or other advances made for children, in the event of their premature deaths'.¹³³ Banking records from the Sheffield Union and Sheffield Hallamshire Banks however show that only 1% of cutlers used life assurance policies as security when applying for loans and, when they did, the banks required additional securities. In all cases the policy appears to have been in the name of the holder, unlike those which Pearson studied. The only company named was the National Mercantile Life Assurance Society. Thomas Cawton¹³⁴, used this policy worth £200 as security for additional occasional credit of £100.¹³⁵ The bank only granted £40.¹³⁶ This lack of evidence for life assurance as security for loans suggests once again that the cutlers could not afford to save money as security for the future.

Loans for building work are more difficult to locate within the banking records. There are no direct references to money being lent for new workshops, only for extensions. For example WA Tyzack, manufacturer of steel, files, scythes and reaping hooks in 1873 applied for a loan of £4500. The entry in the directors minute book of the Sheffield and Hallamshire Bank for the 26th February 1873 reads:

Tyzack WA are about to extend their business premises and will spend some £4500 within the next 4-5mths, say £1600 for land, and the remainder for buildings and plant. Their present works cost £2000. They now have £11000 in the business. This firm apply to know whether the directors will increase the credit from £1000-4000 on security of the deposit of the deeds of their works. The returns are now £20000pa but will gradually increase when their additional works are in operation. Agreed on condition that whole of deeds of

¹³² Pearson, R. 1990 *Thrift or dissipation? The business of life assurance in the early nineteenth century* Economic History Review 2nd series XLIII p242

¹³³ *ibid* p242

¹³⁴ Table knife manufacturer

¹³⁵ £100 credit was already allowed on account

¹³⁶ MBA ACM7 15/9/1858

works deposited with the banks as security. They will expect the returns to be correspondingly increased.¹³⁷

The most detailed records for any building work are in the records relating to Globe Works which appears to have been held by the board of the Sheffield and Hallamshire Bank from 1847-1850. During this period several entries in the minute books record the 'laying down of water pipes from the river to Globe Works and the rebuilding of the engine chimney by Jno Marsh and John Carr' in September 1847. Two months later further pipes are recorded as being laid:

The board orders Jno Grinsons account for pipes and laying to supply Globe Works engine with water for £78-14-10 to be paid and debited to Globe Works account.¹³⁸

In 1850 repairs were recorded as being carried out:

'The consideration of Jno Walters application is postponed to have the 1/2 yrs. rent now due £203 given to him and to have a further sum of £500 advanced to him on account of the extra additions and repairs at Globe Works occasioned by the falling of part of the Wheel floor. This last amount to be added to the purchase money of the property. Jno Watts proposes to pay interest on £500.'¹³⁹

On the basis of this evidence it is possible to conclude that the banks were mainly interested in making short-term loans for working capital, rather than long-term investments in industrial structures. Whatever the requirements of the client, personal respectability was a necessity, as were family, friends and acquaintances, and justifies Crouzet's statement that the provision of capital 'had a highly personal and specific character..; personal relationships were still at the bottom of most investments'.¹⁴⁰

Savings Banks

In addition to banks providing credit, savings banks were established. The Sheffield Savings Bank opened on 1st March 1819 in a room lent by the Cutlers' Company. They opened from twelve noon to two p.m. on Mondays

¹³⁷ MBA AM12 26/2/1873

¹³⁸ MBA AM 5 12/11/1847

¹³⁹ MBA AM5 25/9/1850

¹⁴⁰ Crouzet 1990 op cit. p188.

and Tuesdays and stressed that 'small though a man's wages might be, the Savings Bank would enable him to make the most of them'.¹⁴¹ By the end of 1820 there were 265 depositors and funds of £4056. In 1832 they opened their own building in Surrey Street.

In 1843 G C Holland assessed, as part of his research for the Vital Statistics of Sheffield, the occupations of the depositors at the Bank. Of the 5022 depositors, just 221 (4.4%) were cutlers, 25 were edge tool makers, 30 fork makers, 94 filesmiths, 24 forgers, 119 grinders, ten haft pressers, five joiners tool makers, one lancet maker, 23 razorsmiths, five shearsmiths, 45 scythe and sickle makers, 41 scissor smiths, fifteen scale cutters and pressers and 34 saw makers.¹⁴² Holland accounts for the small number, in total just 13.5% of the total number of depositors, by low wages and fluctuation in the trade.¹⁴³

Savings banks, then, could help depositors to save money, which could then be invested in building, but contemporary evidence suggests that there was little possibility of there ever being a substantial amount deposited by any individual, hence they cannot be regarded as a significant source of finance for building new workshops.

Shares and the Formation of Limited Liability Companies

Shares and the adoption of limited liability were options only open to the larger firms in the nineteenth century, hence they were a means of raising capital only for large-scale works and not for the more characteristic small and medium scale firms. Another consideration must be that the shares issued were seen as long-term investments, and shareholders would be asked to continue to contribute to the capital of the firm until it was able to make a profit. Those who did not respond to calls forfeited their right to later dividends. Shares were however considered as safe securities and banks were willing to accept them as guarantees.

¹⁴¹ Leader, R.E. (not dated but post 1919) A Century of Thrift: An Historical Sketch of the Sheffield Savings Bank 1819-1919 Northend Sheffield p7-8

¹⁴²Holland, G.C. 1843 op cit. p133-4

¹⁴³ ibid p135.

The only reference to the use of shares being used directly to raise money for the erection of a new building connected with the cutlery industry, rather than for working capital, appears in the Fairbank correspondence papers and dates approximately to the 1820s. To raise the £6615-12-3 required to build and equip the grinding wheel between John Street and Thomas Street, 265 shares were sold at £25 each. The estimated return from the £120 troughs was £609-17-7 a year. Fairbank wrote in his advertisement for the wheel:

‘There are no other grinding wheels worked by steam on that side of the town and from the large number of manufacturers and merchants in that quarter it is presumed that all the troughs would very soon meet with the tenants at a fair and reasonable price, these circumstances hold out much encouragement to persons desirous of taking shares particularly merchants, manufacturers and grinders, the latter of whom are well acquainted with the superior advantage arising from a constant moving power.’¹⁴⁴

From the middle of the nineteenth century company law was relaxed to allow the formation of limited liability companies. Throughout the eighteenth century, memories of the bursting of the South Sea Bubble, and the passing of the Bubble Act, had prohibited such formations. Limited companies could only be formed by a Royal Charter or Special Act of Parliament and these were ‘seldom granted to manufacturing industry’.¹⁴⁵

The lifting of restrictions on limited liability provided an impetus for the formation of joint stock banks such as the Sheffield Union and the Sheffield and Hallamshire. By issuing shares, the banks could raise money which they could then lend to the local manufacturing industries. It is interesting to note that manufacturers accounted for 40% of all the capital subscribed to the two banks between 1855 and 1885, with commerce (16%), the ‘professions’ (14%) and independent or unoccupied persons (14%) accounting for the bulk of the rest. Of the ‘manufacturers’ the large majority were in the iron and steel industry (26%) with cutlers accounting for just 0.5% of the capital subscribed in those years.

In October 1844 the Sheffield Stock Exchange was formed. It was designed to be a link with the London markets, and only government stocks and shares and those relating to the railways are to be found in the early lists. In 1849 the

¹⁴⁴ CP2(132) Sheffield Archives

¹⁴⁵ Mathias, P. 1993 reprint 2nd edition op cit. p145.

four Sheffield banks, the United Gas Company, the general cemetery, the waterworks, the canal, the fire office and the North of England Insurance Company were the only local shares to be found. The first firm to be listed was Wheatman and Smith, merchants and manufacturers of saws, field, edge tools, engineers tools and steel refiners and importers, whose shares in 1871 were recorded as costing seven and half pence and whose dividend was 11.5%.

Crouzet and Newton have recognised that the lifting of company restrictions did not lead to the immediate formation of new limited companies within manufacturing industry.¹⁴⁶ The rate books record only ten firms related to the cutlery trades at the end of the century as having limited liability as part of the firm's title. These included Allen Edgar and Co Ltd, Bury and Co. Ltd, Thomas Firth and Son Ltd, William Hutton and Son Ltd, Ibbotson Bros. Ltd, Joseph Rodgers and Son Ltd, J Round and Son Ltd, Sanderson Brothers and Co Ltd, Robert Sorby and Son Ltd, and William Wilkinson and Son Ltd. All of the premises which they occupied are classified as large or medium with the exception of William Wilkinson whose premises in Grimesthorpe Road had a rateable value of £30-15-0 and are classified as small.

When shares were issued they were sold mainly to family members. In the share book of Globe Works 1872-73 out of 1153 shares, 867 belonged to family members and were valued at between £20 and £100 each. The total income from the issuing of these shares produced £36,560 for the Ibbotson Brothers in those years. The family provided £32,835¹⁴⁷ of the total. The returns on the shares are not recorded, as no dividends are listed. The money however was not used for expanding the works, as the building registers refer to no extensions by the Ibbotson Brothers during the period 1870-80 and thus the money raised must have been used as working capital to expand the business. Payne sees the adoption of limited liability as a 'typical British compromise. A step ...taken towards big, or at least bigger, business, but it was fearful and hesitant'.¹⁴⁸ Companies who adopted it did so to obtain limited liability and rather than changing management styles, maintained family connections, the 'privacy of the past' and protected their 'heritage'.¹⁴⁹

¹⁴⁶ Crouzet, F. op cit. 1990 p187 and Newton, L. 1993 op cit. p 121

¹⁴⁷ Records held in Sheffield Archives.

¹⁴⁸ Payne, P.L. 1967 *The Emergence of the Large Scale Company in Great Britain 1870-1914* Economic History Review XX p520

¹⁴⁹ *ibid* p526

To summarise, shares were mainly used for the provision of working capital, although there is some evidence for the provision of fixed capital for new buildings from this source. Their use was limited to larger firms and enterprises and they would therefore not have played an important role in financing the construction of the characteristic smaller buildings of the cutlery trades.

Conclusion

This chapter has demonstrated the shortage of information available on the sources of fixed capital for building during the eighteenth and nineteenth centuries, and the cost of erecting industrial buildings for the cutlery industry. However it is possible to draw the conclusion that the majority of cutlers preferred to rent workspace rather than to build new accommodation. It has shown that one third of all owners applying for building consent in the later part of the nineteenth century were cutlers, but the majority of owners came from other occupations outside the trades, suggesting a large amount of speculative building by those hoping to make money from growth in the cutlery industry. By the end of the century only 40% of owners were connected with the cutlery and related trades.

It has been shown that a cutler could afford to set up business on his own account with limited capital (£4 - £5), but the average earnings of a cutler in the middle of the nineteenth century meant that few could afford to buy or erect a workshop. Savings accounts and assurance policies have been shown to be an insignificant source of capital amongst those involved in the trades. Although credit was available, personal reputation and size of business was crucial if money was to be borrowed from outside the family circle. If firms wanted to expand, personal loans and partnerships have been shown to be the most likely way for a cutler to inject money into a firm. It is from these sources that money for building may have come, although direct evidence does not exist. Working capital, in addition to the sources above, was also available from banks and by the issuing of shares, but this was only open to the largest firms already established in business. Taking the wider view however the sources of finance available were no different from those on offer to all investors in industry in the eighteenth and nineteenth centuries

Those that were successful in raising the capital to erect new premises then had to find a designer and a builder . Who were they? Did speculation lead to innovative or conservative building design for the cutlery trades? These questions will be considered in the next chapter.

Architects, Builders and Building Materials

Studies of eighteenth and nineteenth century English architecture have largely ignored industrial buildings, especially the small and more mundane workshops of the period. Edgar Jones¹ and H.A.N Brockman² have concentrated on the larger buildings such as textile mills, distilleries, public service buildings and warehouses, for it is in these buildings that the fashionable styles of the day are reflected. J.M. Richards in *The Functional Tradition*³ did not examine the truly functional workshops that existed in industries comparable with the cutlery industry, for example the boot and shoe industry of Leicestershire and Northampton, the watchmakers' workshops of Prescott or the jewellery quarter in Birmingham. Instead he concentrated on water mills, windmills, engineering works and harbours. It is therefore impossible to agree with Dixon and Muthesius that the 'subject of Georgian and Victorian industrial buildings has been thoroughly explored'.⁴

In a similar way, the people who physically erected the workshops have been ignored. *Building the Industrial City*⁵ and Aspinall's study of Sheffield⁶ focused on the house builders rather than those who constructed the factories and workshops.

This chapter examines the building styles associated with the cutlery industry, questioning the existence of a vernacular tradition in the nineteenth century and the role of architects in building design. It also assesses the role of the builders and asks what percentage of their time was taken up with the erection of industrial structures.

Finally, the chapter identifies the location of raw materials used, in particular bricks, stone, timber and glass, and examines their influence on the characteristics of the buildings used by the cutlery and related trades.

¹ Jones, E. 1985 Industrial Architecture in Britain 1750-1939 Batsford London

² Brockman, H.A.N. 1974 The British Architect in Industry 1841-1940 George Allen and Unwin London

³ Richards, J.M. 1958 The Functional Tradition in Early Industrial Buildings Architectural Press London

⁴ Dixon, R. and Muthesius, S. 1993 Victorian Architecture World Art Series Thames and Hudson London p120.

⁵ Doughty, M. eds 1986 Building the Industrial City Leicester University Press

⁶ Aspinall, P. 1977 The size and structure of the house building industry in Victorian Sheffield. Working Paper No 49 Centre for Urban and Regional Studies University of Birmingham

The Architect

Architecture as a profession did not emerge until the middle of the nineteenth century. In the later part of the eighteenth and early nineteenth centuries the majority of the buildings erected for the cutlery industry would have been of vernacular design, the builders following traditional patterns. Engineers were occasionally used to design larger buildings, as were surveyors such as the Fairbank family,⁷ who also costed the work to be carried out. One example of the Fairbanks' design work was D. Brammal's Grinding Wheel (Figure 1) at Greystones.⁸

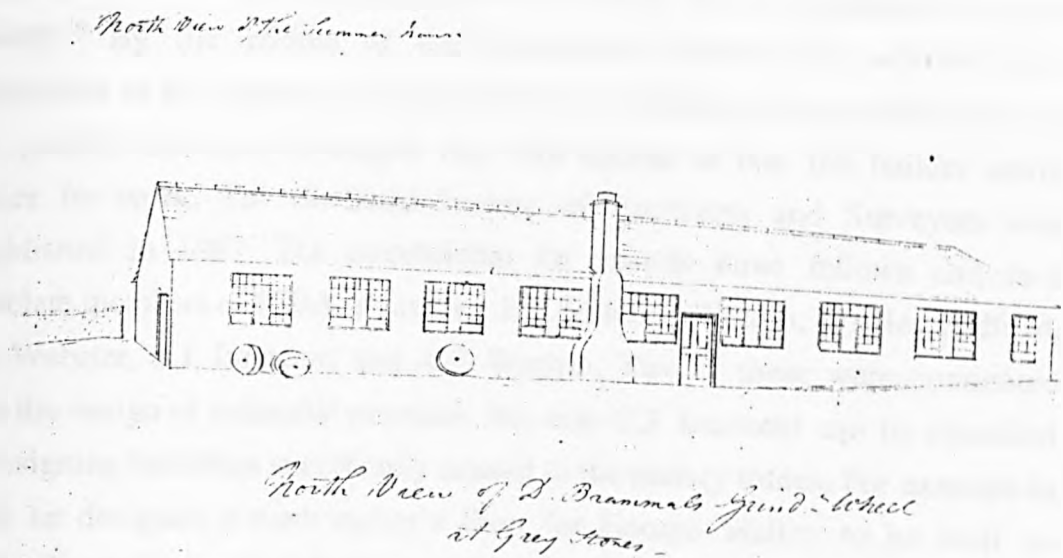


Figure 1: D Brammal's Wheel at Greystones (Fairbank Collection Ebu 71, Sheffield Archives)

However the Fairbanks were rarely referred to as architects. Only in a letter from John Sheldon, in June 1833, does the term occur in connection with the erection of workshops:

⁷ See Ebu references. There are numerous designs including Greys Malt house, warehouse, workshops along with toll houses, fire offices and schools.

⁸ Ebu 71 Fairbank Collection, Sheffield Archives.

'Having thought respecting you plan laid down before me this day I have thought upon the subject for your consideration as an architect. I shall suggest my own opinion as a prospect for your better opinion.'⁹

This chapter assesses the emergence of architects and the architectural profession. It examines their association with the workshops of the cutlery industry and asks how much industrial building design they did. Did they apply the styles of the day to their buildings? Did speculative building hinder or aid the architect in his work?

In 1834 the Institute of British Architects was founded, and in 1837 became the Royal Institute of British Architects (RIBA) when it received its royal charter.¹⁰ By the middle of the nineteenth century the architect was recognised as the designer and supervisor of a building project, who relied on the quantity surveyor to supply him with figures so that the builder could tender for work. The Sheffield Society of Architects and Surveyors was established in 1887. The membership list records three fellows and two associate members of RIBA, including J.B. Mitchell Withers, Charles Hadfield, J.D. Webster, C.J. Innocent and A.F. Watson. Two of these were connected with the design of industrial premises, but only C.J. Innocent can be identified as designing buildings specifically related to the cutlery trades. For example in 1865 he designed a mark maker's shop for George Maltby to be built on Albert Road, Carbrook.¹¹ Fellows of the Institute of Surveyors who joined the Sheffield Society included T.J. Flockton and Mr. F. Fowler.¹² These men are not recorded as having designed any workshops for the cutlery trades.

In the majority of cases, architects did not receive any formal training. In the eighteenth century, William Fairbank I and II had both been school teachers with a mathematical training. 'Architects' and designers in the seventeenth

⁹ CP3 (5) Fairbank Collection

¹⁰ Linstrum, D. 1978 West Yorkshire Architects and Architecture Lund Humphries London p25

¹¹ 5/12/1865 Building Register CA205, Sheffield Archives.

¹² C.J. Innocent was also a member. The Institute of Surveyors was formed in 1868 and put surveyors on the same professional footing as architects.

and eighteenth century had traditionally emerged from a background of literature or mathematics or had been master craftsmen in the building trades.¹³ By the middle of the nineteenth century however the trade directories show that this was not the case, the architects associated with designing workshops for the cutlery industry usually appearing for the first time in the trade directories as architects. There is no evidence that A. Appleby, E Falding, George Foster or J Lister¹⁴ were ever master craftsmen, but John Clark and James Hall are known to have had some formal training. Clark trained as a surveyor.

In 1868 John Clark is recorded as being an assistant surveyor at 109 Nottingham Street. During this time he designed nine properties connected with the cutlery trades, including seven workshops¹⁵, a warehouse¹⁶ and the works¹⁷ of Henry Holdsworth, Britannia metal manufacturer, in Bramall Lane. In 1871 he is recorded for the first time as an architect in the trade directory. James Hall was recorded as an assistant to an architect at Don Terrace, Penistone Road before he established himself on his own account at 18 Bank Street in 1862. No record survives of any work which he carried out before that date.¹⁸ These two architects were the most successful of those who have been identified during the period. In six sample years¹⁹ they secured in total 585 jobs between them.²⁰

Only William Flockton (1804-1864) emerged from a building background. The son of Thomas Flockton, carpenter, joiner and builder, William appears in the 1833, 1837 and 1841 directories as an architect, joiner and builder. The largest industrial premises he designed was Castle Grinding Mill on Blonk Street.

The number of architects in Sheffield rose steadily throughout the nineteenth century (Table 1) and by 1864, when the building registers begin, the profession was well established.

¹³ Saint, A. 1983 *The Image of the Architect* Yale University Press London p57

¹⁴ These names were identified in the building registers 1864-1891. In total they were responsible for the design of at least 61 workshops in the 33 years sampled. The search was carried out on the term "workshop" alone as by the end of the nineteenth century the term "shop" was more likely to refer to commercial premises.

¹⁵ 3/5/1866, 17/8/1866, 13/2/1867, 29/5/1867, 26/7/1867 and 25/10/1866, building registers CA 205

¹⁶ 7/3/1866 and resubmitted 16/3/1866

¹⁷ 6/12/1866 and additions to them 13/2/1867 and 21/3/1867

¹⁸ The building registers commence in 1864.

¹⁹ 1865-66, 1870-71 and 1875-6

²⁰ Includes all types of work not just industrial.

Year of trade directory	Number of architects
1822	4
1833	13
1841	14
1852	14
1862	23
1868	18
1879	57
1888	42
1893	47

Table 1: Number of architects recorded in the trade directories throughout the nineteenth century.

The rise in the number of architects can be explained by the establishment of building regulations in the second half of the nineteenth century.

‘Always tiresome to conform to, and the pride of the architect to evade, bye-laws also required literacy to understand and interpret...[Architects] were therefore well placed to tussle with the increasing complexity of Victorian building law, on behalf both of clients who naturally lacked the requisite knowledge, and of builders, who often lacked literacy.’²¹

The 1853 Smoke Bye-Laws were the earliest in Sheffield associated with industrial building design. These stated that ‘every fire-place or furnace employed or to be employed, within the Borough of Sheffield, in the working of an engine or engines by steam, shall be constructed so as to consume or burn all the smoke arising from such fire-place or furnace’.²²

In 1858 the Local Government Act Office issued guidelines to the Public Health Act of 1848. These allowed municipal corporations to issue bye-laws relating to the width and construction of streets, the structure and stability of buildings, the prevention of fire and the provision for ventilation, drainage and

²¹ Saint A 1983 op cit p67

²² Smoke Bye Laws 12/10/1853 in pursuance of the Municipal Corporation Act, printed by Richard Smith and Co 1871, Sheffield p1

conveniences. The 1864 bye-laws in Sheffield followed the model guidelines but omitted the ventilation of house drainage. The minimum room height was raised from eight feet to eight feet six inches but the thickness of the timbers on the inside face of flues was reduced from nine to four and a half inches. 'Party walls were not required to rise through the roof as this was not in accordance with local building practices!'²³ The majority of these bye-laws were aimed at domestic buildings and in particular at banning the erection of back to back houses. Few of the regulations were applied to industrial premises except those relating to sanitary conditions.

The introduction of the 1875 Public Health Act is reflected in the building registers by the increase in the number of plans rejected at the first application for planning permission. James Hall and John Clark between 1870 and 1871 had nine out of 204 plans rejected at the first submission. Between 1875 and 1876 this had risen to 27 out of 109 plans or a quarter of all their work. The principal change in the regulations concerned the ventilation space around the building. On some plans a note was attached indicating that if a building was 'set back to the new improved line'²⁴ it would be accepted. On others, such as Austin Potter's plan for David Kaye's sixteen houses, sale shop, stable and workshops, the attached note indicated that the plan had been rejected because the arrangement of the privies was wrong.²⁵

The 72 bye-laws introduced into Sheffield in 1889 were based on the provisions made by the 1875 Public Health Act.²⁶ These, for the first time since 1853, set down specific laws regulating industrial buildings. The warehouse class, which included warehouses, factories, manufactories, breweries and distilleries, stipulated structural measurements for each size of building. For example the external and party walls had to be constructed so that:

'where the wall does not exceed 25ft in height it shall be 13.5 inches thick at its base. If the wall does not exceed 45 feet in length (up to 30ft high) it shall be thirteen and a half inches thick at its base..... if it exceeds 45 feet in length (up to 40ft high) it shall be 22 inches thick at its base....Where the wall

²³ Gaskell, S.M. 1983 National Statutes and the Local Community: Building Control by National Legislation and the Introduction of Local Bye-Laws in Victorian England, British Association for Local History p34

²⁴ For example 26/5/1875, Building Registers CA 205, Sheffield Archives

²⁵ Building Registers 30/9/1875 CA205 Sheffield Archives

²⁶ Marshall, R.J. 1993 Town Planning in A History of the City of Sheffield: Society Sheffield Academic Press p20

exceeds seventy feet but does not exceed eighty feet in height: if the wall exceeds forty-five feet in length it shall be increased in thickness from the base up to within 16 feet of the top of the wall by 4.5 inches (from 22 inches).'²⁷

Specific regulation relating to ventilation, windows and drainage still only applied to domestic and public buildings.

The 1878 Factory and Workshop Act²⁸ did not contain any regulations regarding the structure of buildings. The regulations calling for fencing, sanitary provision and cleanliness were aimed at the owners of the workshops rather than the architect.

It can therefore be concluded that due to the increase in the complexity of building regulation at the end of the nineteenth century, the need for a professional architect increased if planning permission for new buildings was being sought. Of the 995 applications for planning permission relating to workshops, between 1864 and 1891, a quarter were submitted by professional architects and there may be other cases where an architect was used but not recorded.

Did Architects Play a Major Role in the Design of Industrial Buildings or did the Vernacular Maintain its Dominance Throughout the Nineteenth Century?

Of the architectural firms identified in the building registers who were connected with workshops of the cutlery industry, few have left any records relating to their businesses. The plans and designs deposited in the Sheffield Archives relate to churches, schools and public buildings, rather than industrial buildings connected with the Sheffield trades, so that none compare with the Fairbank collection of the eighteenth and early nineteenth century. Alfred Appleby and Son is the only firm which has left any record of the work they carried out, between 1879 and 1900.²⁹ This included the Norfolk Lane warehouse for Walker and Hall in 1879, that of William Fearnclough, blade

²⁷ Bye-laws with regard to the new streets and buildings and drainage thereof 11/9/1889. P 15-16

²⁸ Vict.41 1878 ch16, pp102-140

²⁹ 91/B1/1 is a list of clients and work carried out by the Appleby firm. Sheffield Archives

manufacturer in Garden Street in 1884 and alterations to the works of Needham, Veall and Tyzack in Milton Street in 1891.³⁰

The building registers therefore provide the most information about the work of architects. Analysis of those who are known to have been associated with cutlery workshops in sample years has shown that the design of industrial buildings was a small part of their work (Table 2).

Architect	Industrial ³¹	Commercial ³²	Domestic ³³	Villa ³⁴	Public Building ³⁵	Other ³⁶	Total
James Hall	26	17	227	3	3	13	289
John Clark	25	28	230	2	2	12	299
A Appleby	9	7	87	0	0	2	105
E. Falding	2	2	11	0	0	0	15
G. Foster	2	1	2	1	0	1	7
J. Lister	10	13	82	0	0	0	105

Table 2: Planning applications made by the architects in each category in the sampled years (1865-66, 1870-71, 1875-76).

The lack of involvement by architects in planning applications for industrial buildings suggests that the vernacular continued as the main form of building style for the cutlery and related trades throughout the nineteenth century.

Are There Notable Exceptions Where Architectural Styles are Demonstrated?

Works in Sheffield which can clearly be identified as having been designed with architectural style in mind were usually medium or large scale structures such as Sheaf Works, erected in 1823; Globe Works (1825); Castle Grinding Mills (1830s); Eye Witness Works, Milton Street (started c1852); Victoria

³⁰ The present day "Eyewitness Works."

³¹ workshops and warehouses etc.

³² Retail shops

³³ Houses

³⁴ Better quality dwellings

³⁵ Schools and Churches etc.

³⁶ Not included in the other categories

Works in Gell Street (1868); and Elliotts in Sylvester Street, the frontage for which was erected in 1875.

Sheaf Works, erected for William Greaves in 1823, may have been designed by an engineer 'ingrained with the Georgian vernacular'³⁷ rather than by an architect *per se*. It was the first integrated factory in Sheffield, but its main block, a pedimented ashlar building, resembles a small country house³⁸ (Figure 2).

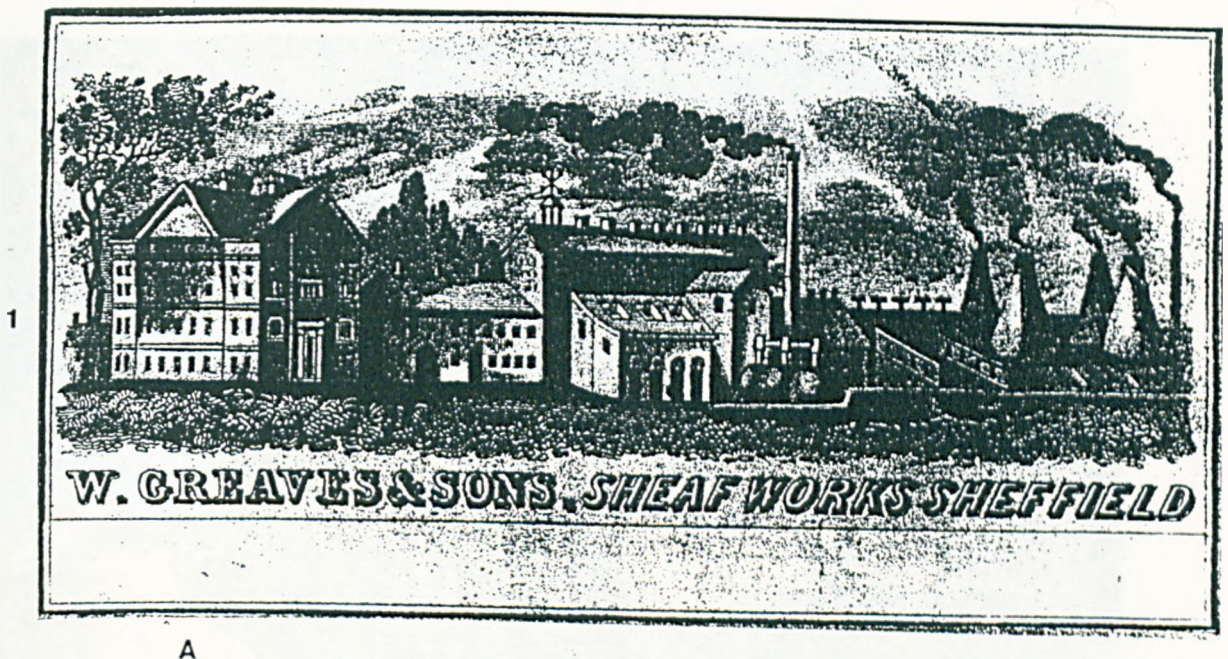


Figure 2: Sheaf Works, the first integrated factory in Sheffield where steel and cutlery were made on a large scale. Note the Office Block (A1). (Local Studies Library G1/10)

The architectural style is that of the 'classical revival' which was popular throughout the Georgian period as it conveyed a 'hierarchy of decorum: it meant that the degree of stateliness and the amount of decoration should reflect the status of the client...It came to stand for ideas of order and harmony

³⁷ Brockman, H.A.N. 1974 op cit. p17

³⁸ Statutory List of Buildings and Special Architectural or Historical Interest English heritage 1995 p449 and Beauchamp, V.A. 1995 in Industrial History of South Yorkshire edited by D. Bayliss for the Association for Industrial Archaeology, Redruth, p45

in general, which were thought to be derived from nature, God and the Universe'.³⁹

Globe Works also reflected the popularity of classical detailing for larger works.⁴⁰ Designed by Messrs G.A. Wall⁴¹ for Ibbotson Brothers as an integrated house and works and erected between 1825 and 1830, the appearance once again resembles that of a stately home (Figure 3a). The frontage is ashlar, the first floor having Ionic pilasters in pairs on either side of the windows. At the back, however, a vernacular style was retained for the workshop buildings (Figure 3b).



Figure 3a: Globe Works, Penistone Road. Note the first floor Ionic pilasters either side of the windows (1995).

³⁹ Dixon, R. and Muthesius, S. 1993 op cit. p17

⁴⁰ English Heritage and Sheffield City Council 1995 Historic Buildings in Sheffield: Understanding Listing EH and SCC p12

⁴¹ Parry, D. 1984 Victorian Sheffield in Advertisements Moss Valley Heritage Publications p15



Figure 3b: Globe Works. The workshops behind the main frontage retain some of the vernacular tradition (1995).

The appreciation of the classical style continued throughout the nineteenth century. 'Classical proportioning was very widely used because of its monumental and imposing appearance.'⁴² It did not however retain the stateliness of the first quarter of the century and pillars and decoration disappeared. This scaled-down version was termed the 'neo-classical' and because it was much cheaper to build, was applied to more moderate industrial buildings of the period. Frequently it resembled the style used for the town houses of the Georgian period. In some cases these were converted in the nineteenth century to workshops, providing a ready styled frontage for the firm. At Venture Works, 103 Arundel Street for example, the house, probably designed by the architects James Paine and Thomas Atkinson,⁴³ was converted to offices and a workshop block was attached behind. In the second half of the century simple variants on classical lines (Figure 4) at Eye Witness Works

⁴² English Heritage 1995 Statutory List of buildings of Special Architectural or Historic Interest EH p163

⁴³ Nunn, P. 1985 The Management of some South Yorkshire Landed Estates in the eighteenth and nineteenth centuries, linked with the central economic development of the area (1700-1850) University of Sheffield unpublished PhD thesis.

produced an effect which clearly differentiated the manager's office from the packing rooms and thus used architectural style to emphasise the social hierarchy within the firm.



Figure 4: Eye Witness Works, Milton Street. Note the fine Georgian styling of the Managers Office. (1995)

The epitome of stylish simplicity is Victoria Works on Gell Street, designed in 1868. The exact proportioning of height and width and the organisation of the windows emphasise its superiority over other buildings in the street.

Buildings erected in the last quarter of the nineteenth century also retained classical proportions. The offices and warehouses designed for Elliot's at Sylvester Works for example, had Georgian characteristics although some

attempt was made at incorporating the ‘constructional polychromy’ style of William Butterfield.⁴⁴ This is the introduction of an ashlar course running at the top of each storey (Figure 5).



Figure 5: Elliot’s Sylvester Works, Arundel Street. One of the few examples of ‘constructional polychromy’ used on an industrial building in Sheffield. Note the ashlar course at the top of each storey and the use of layers of bricks (A1) to create different textures.

The Italianate style, popular with buildings connected with the textile trades, was not used in cutlery workshops and factories. Unlike the textile mills further north, the cutlery industry had no impressively high chimneys to decorate such as Manningham Mills at Bradford with its campanile design. In Sheffield, chimneys, such as those at Butcher’s Wheel and Cornish Place, retained a functional simplicity which went with the rest of the building (Figure 6 a & b)

⁴⁴ Butterfield had first used this style at All Saints, Margaret Street, London between 1850 and 1860. Pragnell, H. 1995 **Britain: A Guide to Architectural Styles from 1066 to the Present Day** Ellipsis London, London p258



Figure 6a: Chimney at Butcher's Wheel, Arundel Street. Like that at Cornish Place (6b) it has retained its functional simplicity in keeping with other structures in the complex.

Industrial premises were rarely constructed in the Victorian Gothic style, and the workshops of the cutlery industry are no exception. This could be seen as somewhat surprising as one of the great advocates of the 'moral' style was



Figure 6b: Chimney at Cornish Place.

John Ruskin, an admirer of the Sheffield craft tradition. However the working conditions of the cutlery trades were far from ‘moral’ or ‘divine’,⁴⁵ with the average life span of a grinder in 1870 being 44 years and a hafter 49.⁴⁶ The gothic style was therefore reserved for buildings such as those designed by Flockton and Gibb in the High Street.⁴⁷

⁴⁵ The gothic style was to become the established architecture of churches, Ruskin and Pugin advocating that it was the most constructionally truthful.

⁴⁶ Pollard, S. 1959 **A History of Labour in Sheffield** Liverpool University Press p331

⁴⁷ *The architecture of our large provincial towns: Sheffield.* **The Builder** vol.LXXIII Oct. 1897. pp273-274. These are no longer standing.

Castle Grinding Mills, designed by William Flockton and built in the 1830s, was intended as a tenement factory, to be rented out for the grinding and polishing of cutlery (Figure 7).

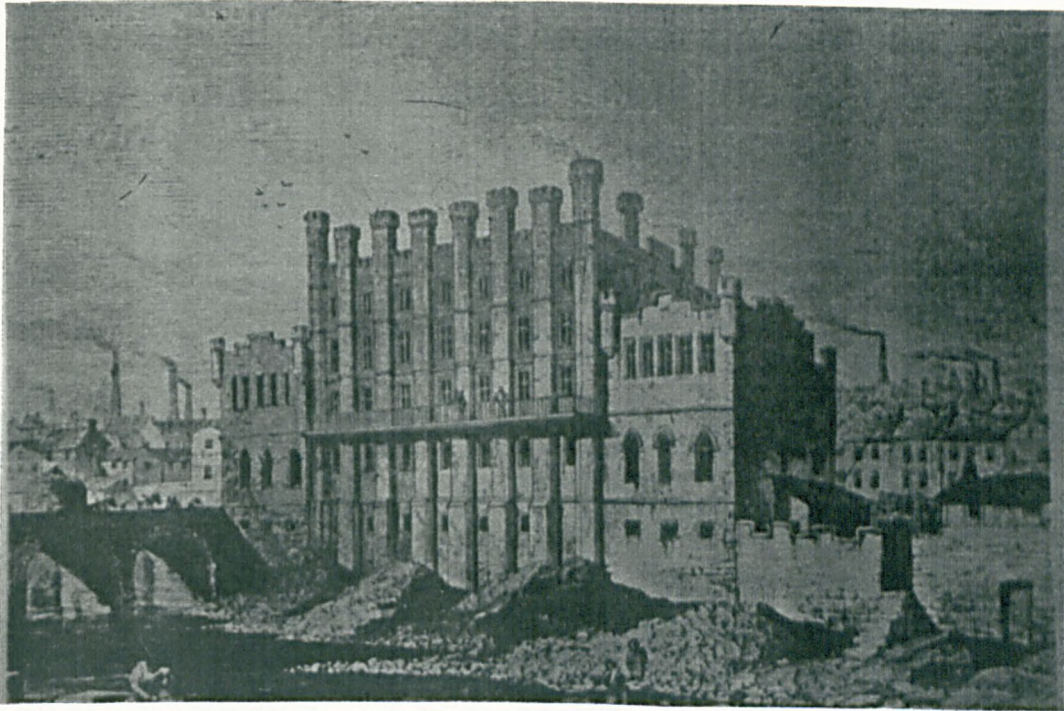


Figure 7: Castle Grinding Mill designed by William Flockton c1830. This is the only example of the Victorian Gothic style being used on an industrial building in Sheffield. (From Jones E 1985;p11)

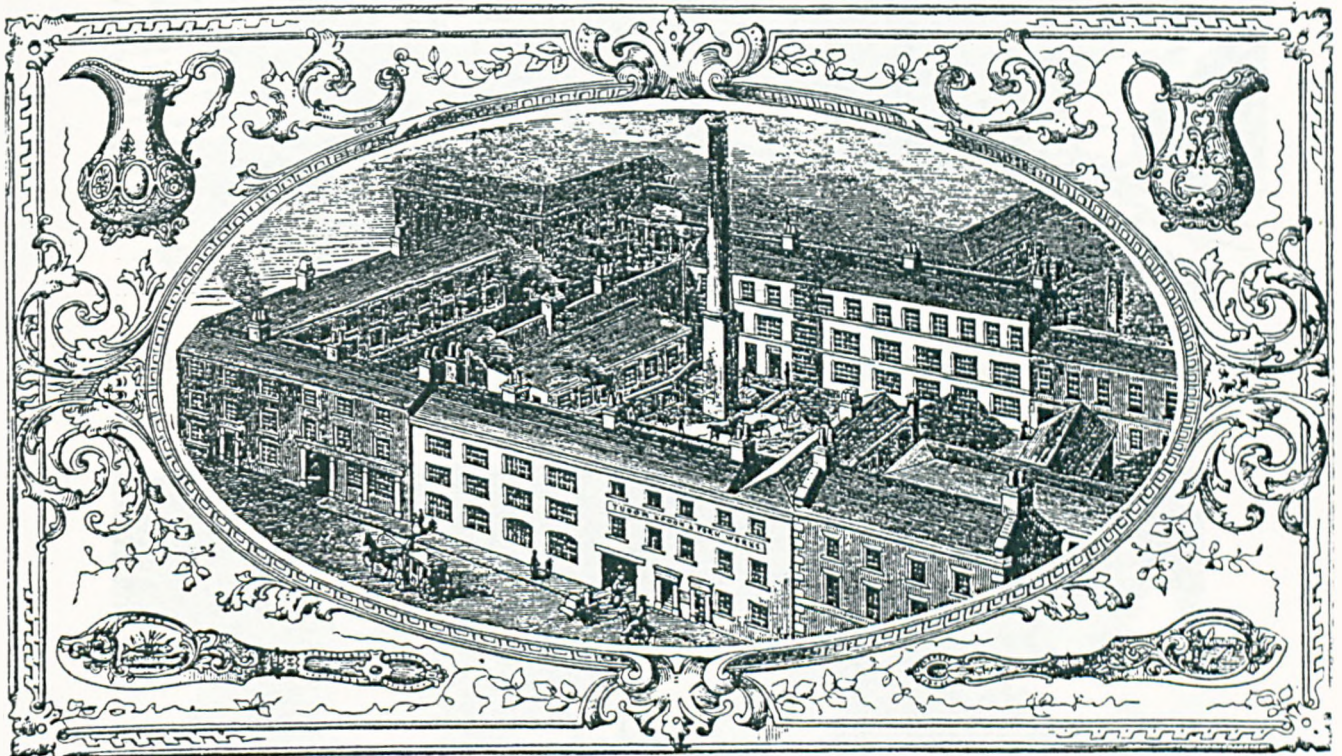
It is the only known example of the application of the Gothic style to an industrial building in Sheffield. Edgar Jones argues however that this structure was not really Gothic but of a Palladian origin with turrets added to give it a medieval gloss.⁴⁸ It was not the Gothic form advocated by Pugin, who believed that if ornament was used it should be appropriate to the form and meaning of the building.

‘There should be no features about a building which are not necessary for convenience, construction or propriety; second, that all ornament should consist of enrichment of the essential construction of the building.’⁴⁹

⁴⁸ Jones, E. 1985 Industrial Architecture in Britain 1750-1939 Batsford, London p111-112

⁴⁹ Quoted in Jones, E. op cit p113

That non-vernacular styling does not seem to have been applied to the majority of the workshops connected with the cutlery industry can be explained by the organization of the trade and the speculative nature of the building undertaken. It has been shown that architects were only employed to design integrated works such as Globe works, Sheaf Works or Eye Witness Works. In the nineteenth century, frontages were used as publicity, fine frontages portraying the success of the firm to the customer. Advertisements appearing in the trade directories often include an image of the works, or as the owner wished the premises to look (Figure 8 a&b).



TUDOR SPOON AND FORK WORKS.—MESSRS. J. ROUND AND SON.

Figure 8a: Advertisement for J Round and Son (Pawson and Brailsford's Illustrated Guide;173) Note the clean frontage used to surround it to convey an impression of size and status when compared to the other buildings.

However although the frontage was architecturally styled the workshops behind usually retained the vernacular as at George Wostenholm's in Wellington Street (Figure 9) and Joseph Rodgers in Norfolk Street (Figure 10).

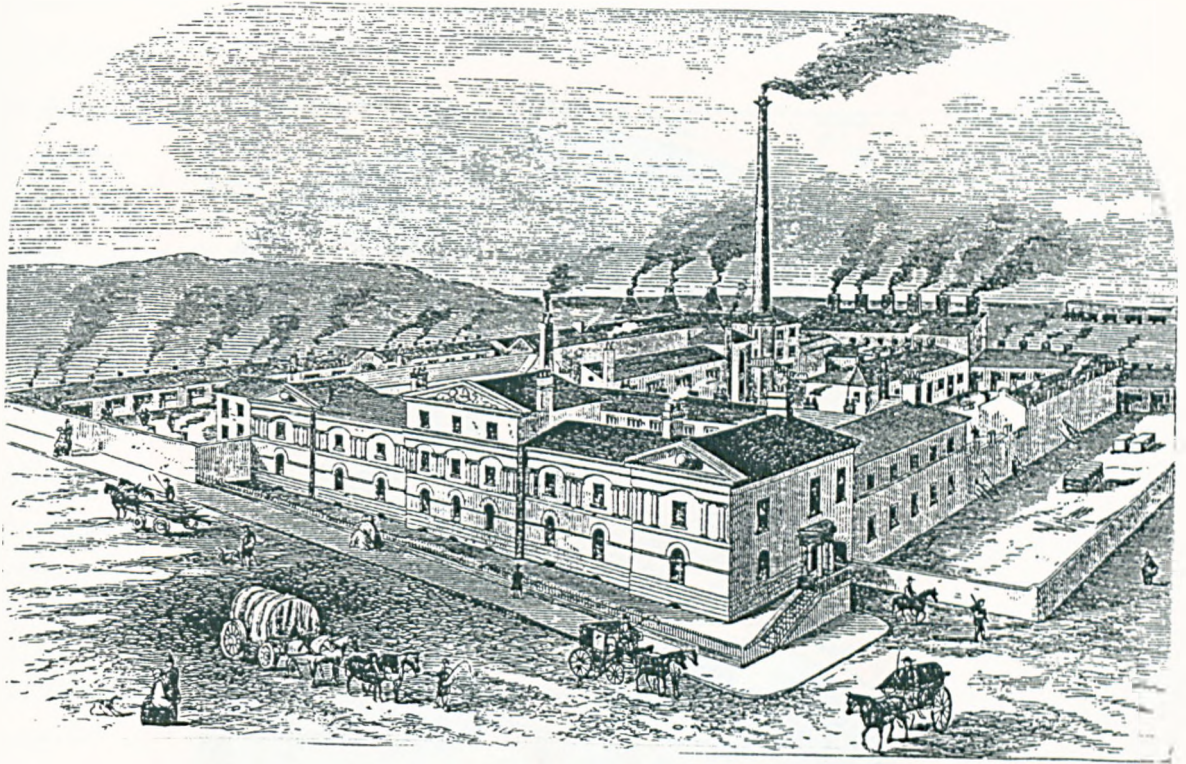


Figure 8b: Globe Works. (Pawson and Brailsford p143). Here the Works is seen in a rural setting and the frontage stretched to give it an image of grandeur (See 3a).

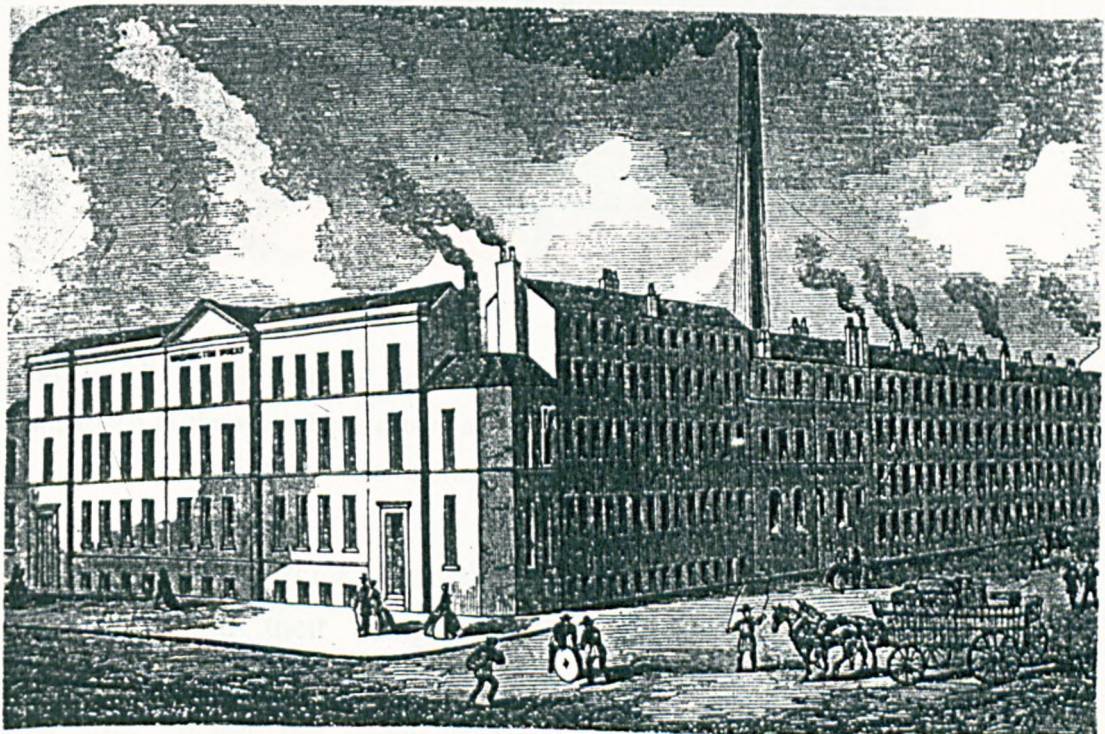


Figure 9: Wostenholm's Washington Works. Note the mansion house frontage and the simpler style retained for the workshops at the rear.



Figure 10: Joseph Rodgers' Works, Norfolk Street. Note the ornate showroom in comparison to the workshops shown at the bottom of the picture. In the bottom right-hand image note the fine staircase at the end of the yard.

Tenement factories and the small courtyard workshops usually had no styling incorporated into their design. 'Little mesters' required the cheapest workspace available if they were set up business on their own account.⁵⁰ Those who owned the tenement factories were reported in 1897 to be

⁵⁰ Hattersley, R. 1990 *The Makers Mark* Pan Books, London p45. Describes how his great grandfather Frederick Hattersley had rented a 'dingy room in a desperate and impecunious attempt to be his own master.'

'persons who never see them, who recognise no obligations and who are represented locally by an agent who remits the rent and an engine tender.'⁵¹ In these instances the owners and instigators of the building would be looking for maximum profit and did not have an image to portray.

In summary therefore, the lack of large integrated firms and the large degree of speculative building for the cutlery and related trades, stifled the possibility of architectural design for the majority of buildings. The vernacular characteristics remained, and it is by these that the buildings of the industry can be identified. Vernacular design was the 'builders' domain.

How was the Local Building Industry Organised and Who Built the Workshops?

The last chapter assessed who had financed the workshop buildings. Here those who erected them will be analysed.

In 1763, Thomas Mortimer described how, as he saw it, the building industry functioned:

'Of late years the capital masters of carpentry have assumed the name of Builders...for this reason, because they make an estimate of the total expense of a House and contract for the execution of the whole for the amount of their estimate; for they take upon themselves the providing of the materials and employ their own masons, plumbers, smiths, etc. whereas formerly it was the custom for gentlemen and merchants to apply to the several masters in each branch and employ them in executing their plans.'⁵²

In Sheffield however the old system appears to have continued into the nineteenth century. The field and building books of the Fairbank firm of surveyors indicate that the majority of building jobs were split into their constituent parts. Entries for bricklaying, carpentry and joinery, plumbing and glazing, painting and plastering for a single structure were usually listed separately and dispersed throughout the field and building books, at least, until 1800. One example of a 'builder', as defined by Mortimer, was J Rhodes who in 1772 completed the brickwork, carpentry and joinery, slating and plastering at the Duke of Norfolk's hospital.⁵³

⁵¹ British Parliamentary Papers Industrial Revolution: Factories Session 1897-99 vol. 26 IUP

⁵² Quoted in Clarke, L. 1992 Building Capitalism Routledge London p 73

⁵³ 1772-2-19 BB45 Fairbank Collection, Sheffield Archives.

William Fairbank II appears to have been the intermediate agent between the 'gentleman' or 'merchant' and the craftsman. John Soane⁵⁴ perhaps best summarises his position when describing the role of an eighteenth century architect: 'he is the intermediate agent between the employer, whose honour and interest he is to study, and the mechanic, whose rights he is to defend. His situation implies great trust; he is responsible for the mistakes, negligence, and ignorance of those he employs; and above all, he is to take care that the workmen's bills do not exceed his own estimates'.⁵⁵ Commissioners to the Office in Works in 1812-13 noticed that estimates were frequently inaccurate throughout the country, reporting: 'measurement of completed building work prior to payment caused enormous difficulties and frequent disputes with the 'distressful, often ruinous, uncertainty of estimates' made by measurers said to be 'seldom right in their conjectures'.⁵⁶ The Fairbank firm however does not appear to have given many estimates, but measured the work after it had been carried out. The account book entries frequently read 'to measuring' at the beginning of every new building job.

There is no evidence that the Fairbanks acted as the employers of building craftsmen, except when they required work to be done on their own property. They therefore may have acted as agents. The account books show that the costs of the firm's work were met either by the client or the builder or by both. For example the account for Robert Unwin (carpenter and joiner) for 1747 shows that Fairbank's charges were split equally between himself and clients such as Robert Brown, J Spooner and G Pearson.⁵⁷ In Benjamin Roebuck's account, the cost of Fairbank's measuring his carpentry and joiner work is recorded as being paid:

'his carp and joyner work by W Thompson half0-2-9'

In the early part of the nineteenth century however the Fairbank papers show some evidence for competitive tendering, which the Commissioners at the

⁵⁴ Architect of the Bank of England 1788 (Pevsner, N. 1973 An Outline of European Architecture Art Book Society Readers Union, London p372.

⁵⁵ Quoted in Saint, A. 1983 The Image of the Architect Yale University Press, London p58

⁵⁶ Powell, C.G. 1980 An Economic History of the British Building Industry 1815-1879 Architectural Press London p28

⁵⁷ Account Book 4 p29, Fairbank Collection, Sheffield Archives.

Office of Works, in 1812-13, regarded as a superior method of valuing.⁵⁸ For example, for John Sheldon's workshops and stables⁵⁹ quotes were obtained from William Crawford and Earnshaw and Lomas. It was agreed that William Crawford should take down and rebuild the workshops in Smith Street for Mr Sheldon for the sum of £220 by 1st November 'to the satisfaction of Messrs Fairbank and Son.'⁶⁰ In addition to the £220, William Crawford was to have all the timber, bricks and windows from the old workshops and those that were in a gig house in Machon Bank. John Sheldon was to provide a horse to move the latter material to Sheffield. Fairbank's fees for setting out the specifications and plans were to be paid equally by the two parties.

In total, during the 62 years covered by the field book and building books (1753-1815), the Fairbanks had dealings with 400 firms connected with the building trades. This should be compared with the 31 people listed as being connected with the building trades in the 1797 directory, or the 62 listed in 1822. Of the 400 firms, 300 carried out less than five jobs in association with the Fairbank firm during the period, while other firms appear regularly. Anthony Chapman for example took 25% of all the bricklaying jobs recorded, and Benjamin Ball and Edward Needham a further 9%. John Stacey and Joseph Badger accounted for 24% of all carpentry and joiner jobs, and Francis Fenton took on nearly 50% of the painting work. Other important names included Jonathan Rhodes who undertook plastering work, and the slaters, Thomas and Samuel Jackson, Thomas Rodgers and Henry Atkin. No client however favoured one particular craftsman, and the choice was probably dictated by price, quality of work and availability.

The building industry in Sheffield in the eighteenth and nineteenth centuries therefore consisted of master craftsmen who may have used reputable firms such as the Fairbanks to find them work. The Fairbanks appear to have dominated the surveying scene from 1715 to 1840,⁶¹ although it is not possible to ascertain what percentage of the town's work they undertook as a whole.

⁵⁸ In Powell, C.G. 1980 op cit. p28

⁵⁹ CP3 1-4 Fairbank Collection, Sheffield Archives.

⁶⁰ CP3 (14) Fairbank Collection, Memorandum of agreement, Sheffield Archives.

⁶¹ Leader, R.E. 1903 Surveyors and Architects of the Past in Sheffield: A lecture, Sheffield Local Studies Library

The Fairbank papers do, however, give some indication as to the importance of industrial structures in the work of Sheffield's eighteenth century craftsman and master builders, although the labourers who provided the 'brute force essential to building' are rarely mentioned.⁶²

What Percentage of a Builder's Work Involved Industrial Structures?

The data in the field books and building books allow an analysis of the number of building jobs done in association with the Fairbank firm. Table 3 shows the results.

Craftsman	Years worked	Industrial ⁶³	Commercial	Domestic	Public	Other ⁶⁴	Total
A Chapman	1760-1786	27	4	29	9	134	203
B Ball	1753-1781	4	0	4	3	19	30
E Needham	1753-1777	6	0	3	0	17	26
J Stacey	1771-1798	30	6	19	21	52	128
J Badger	1770-1811	24	4	23	0	39	33
Jackson T	1756-1775	12	0	1	1	19	33
Jackson S	1778-1800	4	1	6	0	5	16
F Fenton	1753-1781	12	3	32	11	68	126
J Rhodes	1761-1800	1	1	8	4	27	41
Rodgers T	1774-1794	5	0	6	2	9	22
Atkin H	1772-1785	4	2	3	0	11	20

Table 3: Number of jobs carried out in each category by the major craftsmen identified in the Fairbank Field and Building Book and the dates which they worked.

The conclusion can be drawn that industrial structures did not make up more than a quarter of the craftsmen's work recorded by Fairbank over an average of 25 years. In a similar way to the architects, the majority of the 'builders' work carried out was connected with domestic and other structures. Typical examples of the latter are Fenton's painting work at N Stead's house, or E

⁶² Powell, C.G. 1980 op cit. p32

⁶³ This included workshops, breweries, malhouses and warehouses

⁶⁴ Other reflects stables, barns etc. and those titles which had no mention of a structure.

Parker junior's head board,⁶⁵ James Frith's garden wall by A Chapman,⁶⁶ or J Wheat's Joiner work by J Badger at tenements in Paradise Square.⁶⁷

Builders in the Nineteenth Century.

An increase in the numbers of building craftsmen during the nineteenth century can be identified in the trade directories (Table 4), reflecting the rapid growth of the town. In 1850 the population of Sheffield was 135,300; by 1891 it had grown to 324,000, an increase of 239%.⁶⁸ Correspondingly, between 1864 and 1891, 23,306 new houses were built.⁶⁹ However, despite knowing the names of those connected with the building trades the types of jobs which they carried out cannot be fully analysed as no builders' records survive.

Year	Builder/joiners/ carpenters	Plumber and glaziers	Masons and bricklayers	Slaters	Total
1833	93	22	66	16	197
1841	122	40	88	22	272
1852	163	42	88	12	305
1862	184	55	134	16	389
1868	199	66	136	20	421
1879	808	169	333	24	1334
1893	628	106	127	45	906

Table 4: The number of craftsmen in each trade listed in the directories, and the total listed for the building trades.

The building registers can identify some builders who were involved with the erection of new workshops if they were the owners or depositors of plans. William Kirk, builder, was associated with seven jobs connected with workshops or shops. This is in comparison with 49 applications for houses and seven for commercial property. Kirk however was not the owner but the depositor of these plans. He seems to have had an association with Nathaniel Hodgson, owner and builder, in seven of the applications which possibly

⁶⁵ 1762-11-23-FB23-90 and 1781-2-2-BB64-186 respectively. Fairbank Collection.

⁶⁶ 1764-11-07-FB28-08 *ibid.*

⁶⁷ 1778-04-18-BB60-197 *ibid.*

⁶⁸ Pollard, S. 1959 *op cit.* p89

⁶⁹ Pollard, S. 1959 p337

suggests that Kirk was a designer and Hodgson put up the money for the buildings. It is clear from the trade directories that Kirk was not a craftsman, but a manager of speculative ventures, as he does not appear under the trade lists, but only with the individual names and addresses. In comparison, David Kaye was the owner as well as the depositor of 90% of the plans associated with him, and industrial buildings appear to have formed a significant part of his work. Between 1874 and 1877 the building registers show him to be involved with four jobs connected with houses and commercial property and three with industrial premises. In all cases the applications for workshops were in conjunction with houses.⁷⁰ In total he applied for planning permission for 70 houses, three shops, three workshops and a file shop.

Summary

This section has shown just how limited our information is about the builders of the cutlery workshops, especially after 1848 when building information in the Fairbank archive ceases. It is therefore impossible to build an accurate picture of the working patterns of mid to late nineteenth-century builders, although the building registers do give some information. The role of the 'builder' appears to have developed by the end of the nineteenth century from that of craftsman such as mason, bricklayer, joiner or carpenter, to a manager of projects, sub-contracting work to the individual craftsman. The builder would frequently be listed with the carpenters and joiners in the trade directories, suggesting that it is from these trades that the more entrepreneurial builder emerged.

The number of industrial buildings in the work of the builders identified was usually small, most of their work being connected with domestic dwellings. It has also shown that the builders would have designed the majority of the industrial buildings in the vernacular, especially since only a small percentage of industrial work was carried out by identified architects.

⁷⁰ See building registers CA 205 13/2/1874, 30/9/1875, 11/6/1875, 13/10/1875, 14/6/1876, 29/6/1876, 13/6/1877

What Were the Sources of Building Materials Used in the Workshops, and What Influence did their Availability have on the Appearance of the Building?

Buildings in the vernacular generally use local materials which give particular regions their distinctive styles. This section considers the supply of brick, lime, stone, slate, timber and glass and asks how this affected the appearance of the buildings of the cutlery industry.

Bricks

The workshops of the cutlery trades within the town were nearly always built of brick, the exceptions being some of the larger integrated works such as Globe and Sheaf works which are fronted with ashlar. The brick clays in the Sheffield area are found within the coal measures.⁷¹

From the Fairbank papers it is possible to identify operational brick kilns in the late eighteenth and early nineteenth centuries. For example a kiln located in the 'Black Lands' in Broomhall Street and owned by Mrs Rutherford, is known to have produced 2,567,700 bricks for Mr Walker between 1816 and 1820. The total cost of the bricks was £435-0-0⁷² on which Mr Walker paid duty amounting to £126-15-9.⁷³ Another kiln in Thomas Street produced 1,913,900 bricks between November 1836 and October 1839. A brick kiln was also identified in a valuation as belonging to Mr Dodson of Heeley. The site included:

'the brick kiln, 2 reservoirs 76 yards long, 2 brick high and covered with bricks, and a door case for the shed to the sum of £53-8-7'⁷⁴

In addition to brick kilns, brickyards have been identified. Examples include John Gillot's (Figure 11.1) and Robert Unwin's (Figure 11.2) in the Park,⁷⁵ Machin and Hammond's brickyard near the Infirmary,⁷⁶ John Baxter's, Robert

⁷¹ Hammond, M. 1985 **Bricks and Brickmaking** Shire, Aylesbury

⁷² CP39 (54) Fairbank Collection

⁷³ Cp39 (55) *ibid.*

⁷⁴ CP41 (139) also see CP41 (140-144)

⁷⁵ 1765-5-1-FB28-78 and 1761-3-30-FB18-143 Fairbank Collection

⁷⁶ 1819-9-6-FB152-53 *ibid*

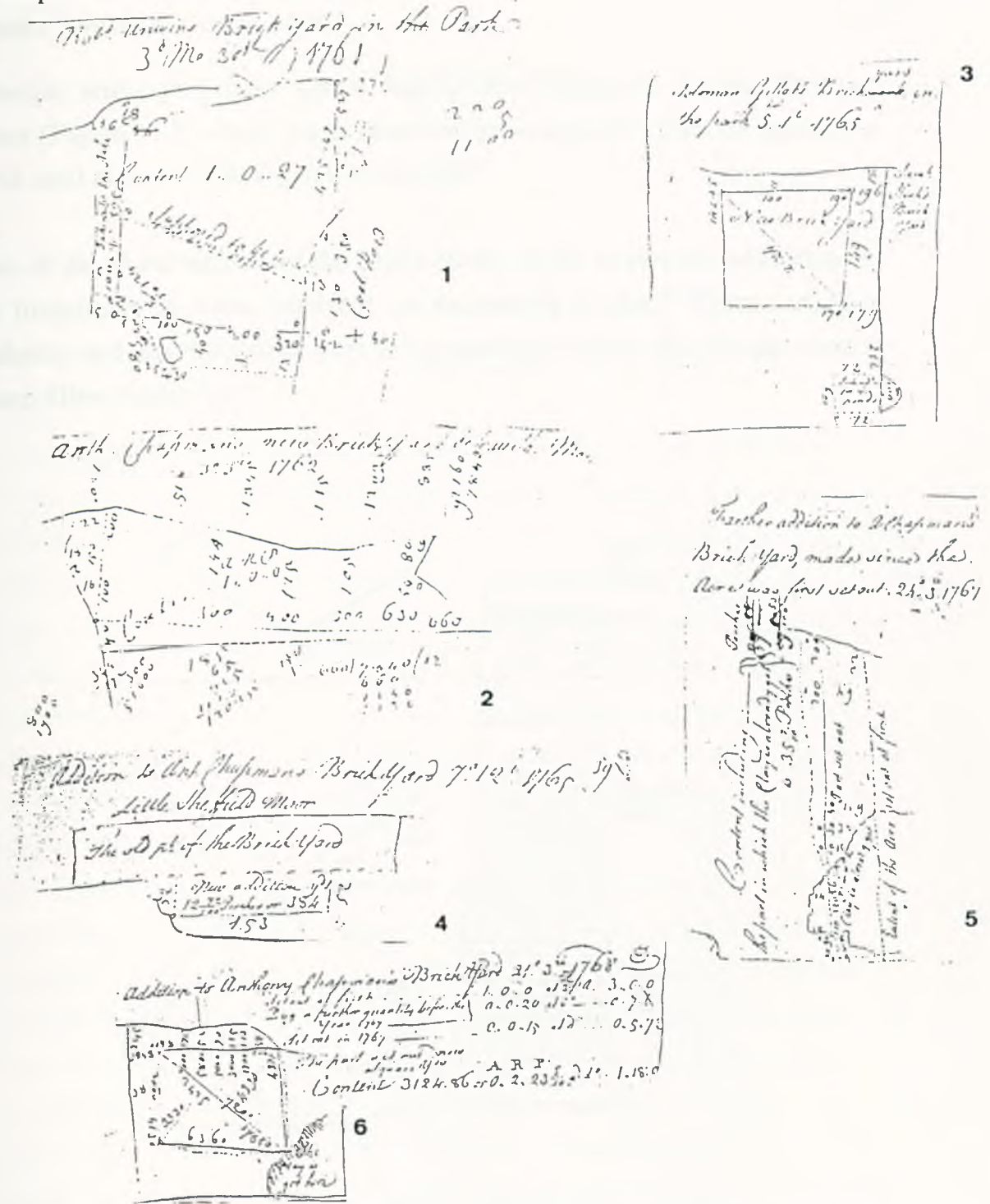


Figure 11: Some Brickyards shown in Fairbank Field Books. **11.1** FB18p143 1761 **11.2** FB21p100 1762 **11.3** FB28p78 1765 **11.4** FB30p30 1765 **11.5** FB32p24 1767 **11.6** FB34p50 1734 (Refer to original fieldbooks for clarity).

Woollen and Mr Smith's at Wadsley,⁷⁷ and another belonging to John Moore whose location has not been identified.⁷⁸ Anthony Chapman, one of the

⁷⁷ Cp23 (15) and CP23 (92 and 93) *ibid*.

⁷⁸ 1776-2-6-FB48s-22 *ibid*.

principal bricklayers of the period, had his own brickyard at Little Sheffield Moor (Figure 11.3) which can be shown to have expanded from its opening in 1762 until at least 1768 (Figures 11.4-11.6).⁷⁹

One of the characteristics of the bricks found in the small-scale workshops is the irregularity of colour, although not necessarily of size.⁸⁰ These variations probably indicate that bricks were being made on or near the site and fired in clamp kilns (Figure 12).⁸¹

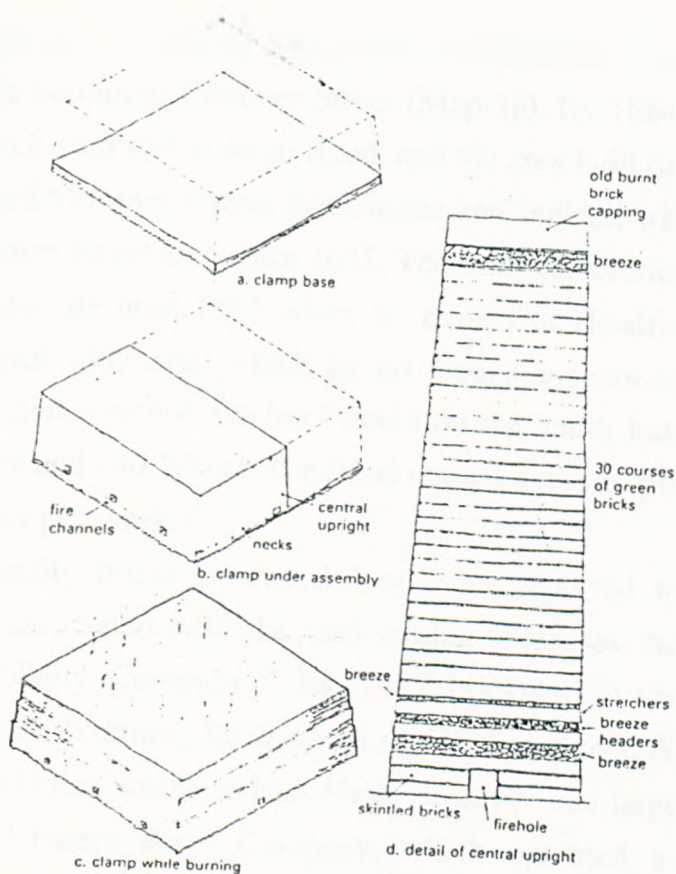


Figure 12: Clamp Kiln: one of its biggest advantages was that it was easy to assemble on a building site. The bricks at the bottom would have been over-burnt and discarded. On the edge the bricks would have been under-burnt or 'pink'. The remainder were properly burnt but had differences in colour and texture according to variations in the burning process. (Brunskill R, 1990;27-28)

Throughout the nineteenth century the number of brick kilns increases (Table 5) and their location reflects the growth of the town.

⁷⁹ 1762-3-3-FB21-100, 1765-12-7-FB30-39, 1767-3-24-FB32-24 and 1768-3-21-FB34-50 *ibid.*

⁸⁰ See chapter four on structural characteristics of the workshops

⁸¹ Brunskill, R.W. 1990 **Brick Building in Britain** Victor Gollancz London p28

Year	Number of Brick Makers
1833	15
1841	16
1852	11
1862	26
1868	28
1879	106 ⁸²
1893	28

Table 5: Number of brick makers as indicated by the trade directories.

For example in the Western area, a kiln was located in the 1850s in Egerton Street at the bottom of Clarence Street (Map 1a). By 1864 it had disappeared, as had a brick yard on Ecclesall Road, and the area built on (Map 1b). The kiln had belonged to James Evans, brickmaker and builder, who had been located in the Clarence Street area since 1841. The trade directories show that he made bricks on the site until 1862 when he moved to Headford Street where he remained until 1887 after which he no longer appears in the directories. In 1864 flood claims record two brickworks on the south bank of Loxley facing Storrs Bridge and Old Wheel. The flood caused a loss of production of at least 30,000 bricks per week.⁸³

The best quality bricks produced locally are reported to have come from brickworks associated with the coal mining industries, such as those of the Nunnery Colliery Company.⁸⁴ By 1905 brickworks were also located at Carwood Road, Worthing Road, Crookes, Harding Street, Attercliffe and there was a disused brick works at Hurl Field, Heeley.⁸⁵ The largest brickmaker was the Sheffield Patent Brick Company, which operated a Hoffman kiln on Rutland Road from 1879 until the Parkwood Springs clay ran out in 1978.⁸⁶ Map 2 shows the location of the brickworks and of other nineteenth-century building material suppliers.

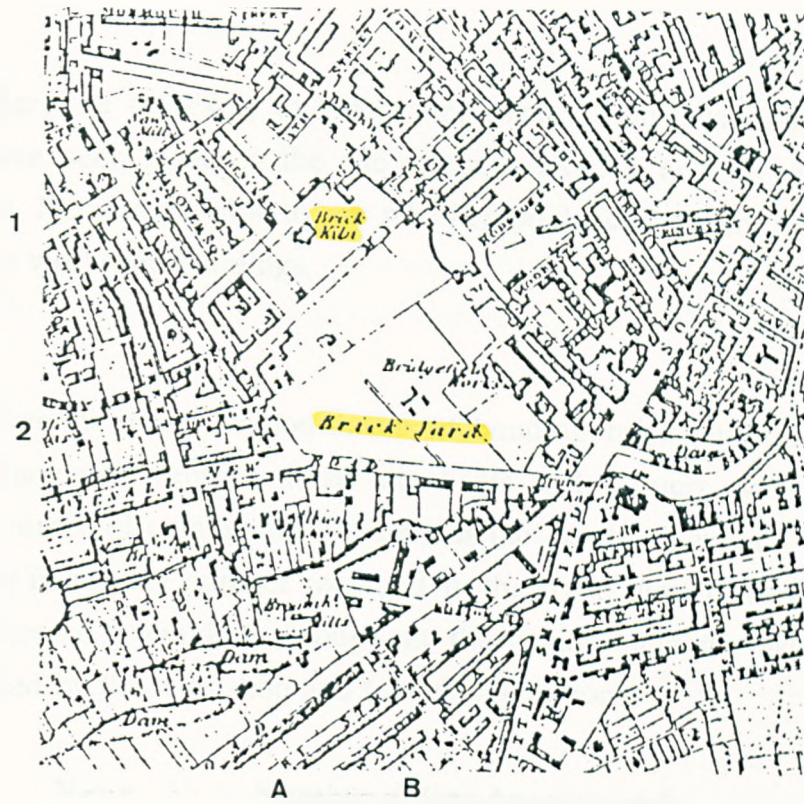
⁸² Includes tile and chimney top manufacturers. It will be noted that the 1879 figures in all tables are higher than the preceding and following years suggesting that it was a particularly comprehensive directory.

⁸³ Cass, J. 1989 *The Flood Claims: a postscript to the Sheffield Flood of March 11/12 1864* Transactions of the Hunter Archaeological Society vol. 15 p32

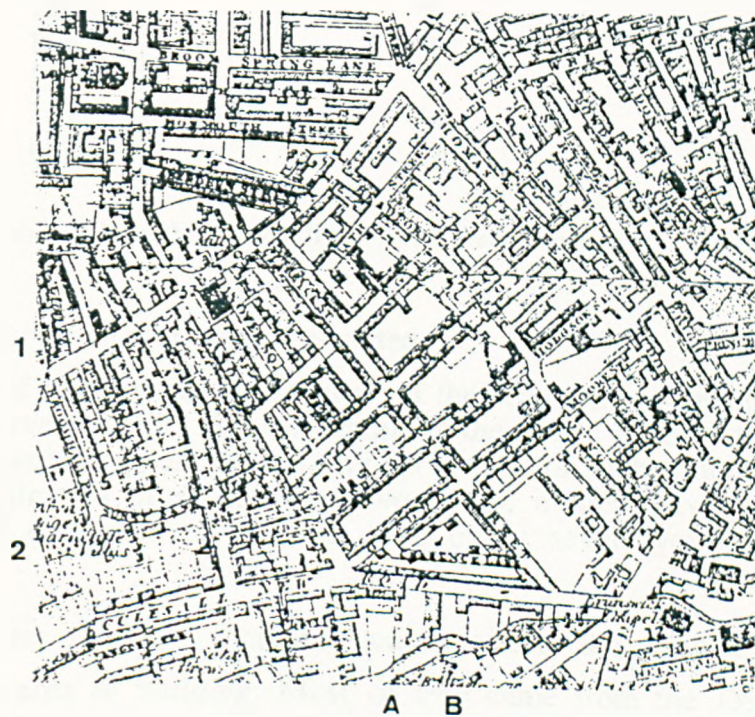
⁸⁴ Hague, G. 1982 *The Brick-making industry in Sheffield* Victorian Society Newsletter Summer

⁸⁵ Alan Godfrey reprints 1988 of OS 1:2500 maps dated 1905/6

⁸⁶ Hague, G. 1982 op cit.



Map 1a: White's Map, 1853. Note the brick kiln at A1 and brickyard at B2



Map 1b: White's Map 1864. Note that the brickyard and the kiln are no longer there and that the area has been developed (A1 & B2)

The bricks therefore are likely to have come mainly from local sources and some may have been made on the site of the workshop as and when they were required. It is not possible to say whether bricks came from outside the area for use in workshop buildings.

Lime

Lime mortar was the most common means of bonding brick and stone walls during the nineteenth century. Lime merchants and burners were usually situated near routes of communication such as the canals, rivers and railways (Map 2). Their increasing number recorded in the trade directories (Table 6) reflects the increase in building throughout the century and the use of lime wash as dictated by the workshop and factory regulations.

Year	Number of lime burners and merchants.
1833	4
1841	3
1852	7
1862	9
1868	7
1879	34
1893	18

Table 6: Lime Merchants listed in the trade directories.

In 1878 the Factory and Workshop Act stated:

For the purpose of securing the observance of the requirements of this Act as to cleanliness in every factory and workshop, all the inside walls of the rooms of the factory or workshop, and all the ceilings or tops of such rooms....and all passages and staircases of a factory or workshop, if they have not been painted with oil or varnished once at least every seven years, shall be **limewashed**.⁸⁷

Their location near routes of communication reflects the need to import limestone to the area of building. Most of lime came from the Derbyshire carboniferous limestone or from the magnesian limestone east of Rotherham. The latter was brought to Sheffield via the Don Navigation.

⁸⁷ Factory and Workshop Act 1878 Parliamentary Papers 41Vict. Chapter 16 part II p111

The type of kiln most likely to have been used in these town settings was the continuous kiln, such as James Malcolm's double rectangular kiln developed in 1805. 'The heat of one kiln, fired first, would pass through a party wall to the other, dry its load and hence reduce its burning time when fired in its turn'.⁸⁸ 'However it is also likely in some cases that lime for mortar was produced on building sites in a clamp kiln like bricks as and when required.

Stone

Stone was used to build rural workshops (Figure 13), but in the urban setting it was used to front large-scale buildings or as dressings for brick structures. Stone merchants' offices remained a feature of city centre trade, providing access to sources of high quality or exotic material. The exception was the supply of stone for roofing. Local stone slates were used in Sheffield into the mid-nineteenth century. The stone merchants would have played a more important role in the supply of roof covering and of decorative features rather than of stone for wall construction (Map 2). The trade directories indicate the number of stone quarry owners who existed throughout the century (Table 7).

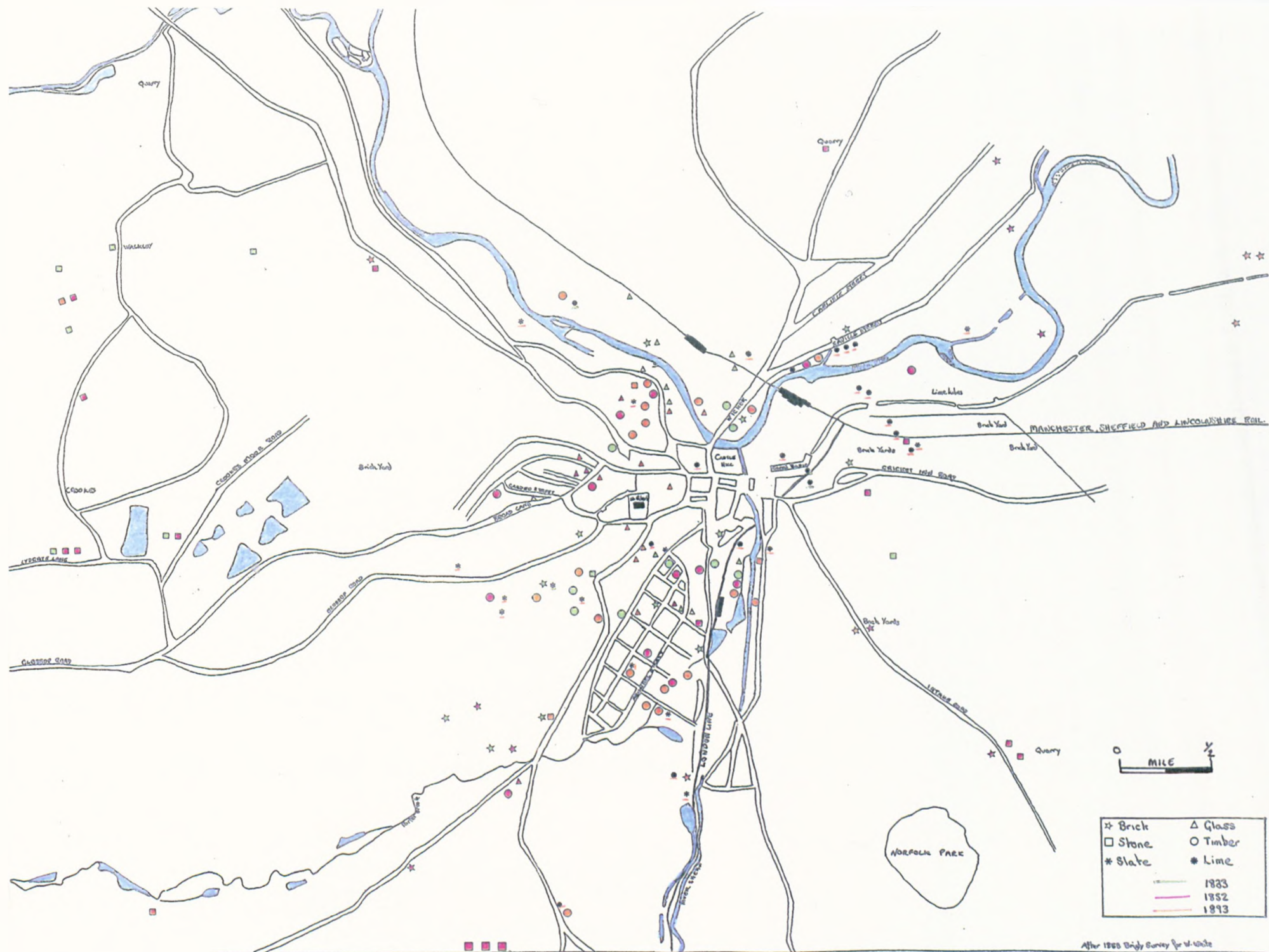


Figure 13: James Vickers' razor scale pressers workshop at Stannington. Note the use of stone for this rural building.

⁸⁸ William, R. 1989 Limekilns and Limeburning Shire Aylesbury p 23

Map 2: The location of building materials and suppliers in 1833, 1852 and 1893.

(Information from the trade directories for each year.)



Year of Directory	Number of Stone Quarry Owners
1833	18
1841	18
1852	21
1862	31 + 22 at Wickersley
1868	39
1879	123
1893	15

Table 7: Number of Stone Quarry Owners shown in the trade directories of the nineteenth century.

Stone quarries existed on the outskirts of the town, for example at Brincliffe Edge, Walkley, Ranmoor, Lydgate, Wadsley, Owlerton, and Grenoside.⁸⁹ The Fairbank records identify quarries at Bole Hill, Crookes, belonging to Solomon Gillatt⁹⁰ and Anthony Chapman's quarry at Little Sheffield which was established by William Battie in 1764⁹¹ (Figure 14). There were also quarries at James Furniss' farm owned by John Taylor, in Smithy Wood, at John Cornish's in the Park, and a public stone quarry recorded as being at Crookesmoor.⁹² In total there were eleven stone quarries listed in the Fairbank Collection which would have provided gritstone and sandstone for building purposes. As well as providing stone the quarries often provided slates.

Slate

Slate quarries are known to have existed in the eighteenth century near Ringinglow, such as that rented by Benjamin Fox from Samuel Shore Esq.,⁹³ or the slate and pavoir quarry on Brown's Edge taken by Benjamin Fox and Samuel Halgate for Samuel Shore Esq., Upper Hallam.⁹⁴ Others included Thos. Bright's Close, Fulwood⁹⁵ and S. Shore's slate quarry which was mapped by

⁸⁹ See Barsby, P. 1996 The Quarrying and Use of Stone in the Sheffield Area from the 15th Century MA, University of Sheffield, Division of Adult Continuing Education (D.A.C.E)

⁹⁰ 1764-4-4-FB26-144 Fairbank Collection, Sheffield Archives

⁹¹ FB26 p 144 2/4/1764, FB28 p142 4/9/1765, FB33 p 6 22/8/1767 and FB38 p 36 29/1/1770 *ibid.*

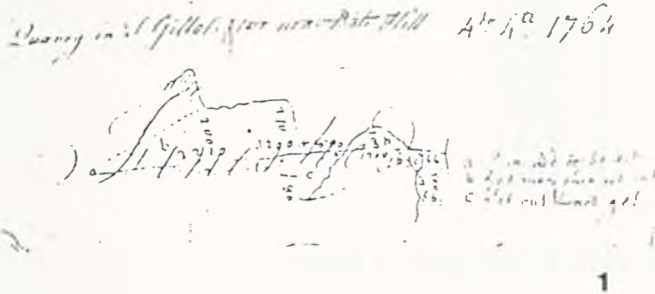
⁹² FB42 p4 10/4/1775, FB82 p 26 16/8/1798, CP36 (22), FB250 p 16 20/8/1838 Fairbank Collection Sheffield Archives.

⁹³ 1822/04/19 FB159 p021 Fairbank Collection, Sheffield Archives

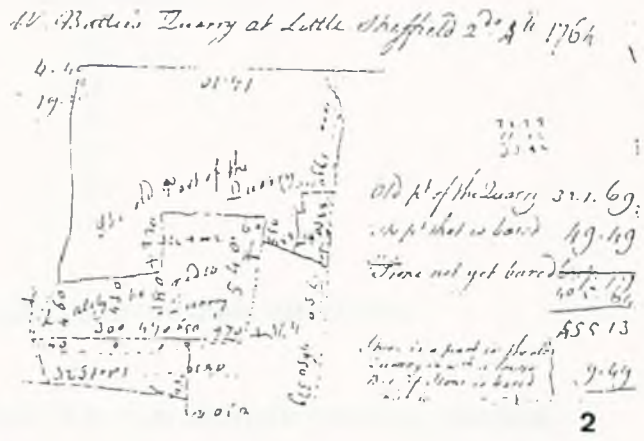
⁹⁴ 1822/04/19/ FB159p036 Fairbank Collection, Sheffield Archives

⁹⁵ 1776/6/29/ BB056p068 Fairbank Collection, Sheffield Archives

Figure 14: Stone Quarries in Fairbank Fieldbooks. 14.1 FB26p144 1764, 14.2 FB26p144 1764, 14.3 FB33p16 1767 14.4 FB36p36 1770 (Refer to original fieldbooks for clarity).

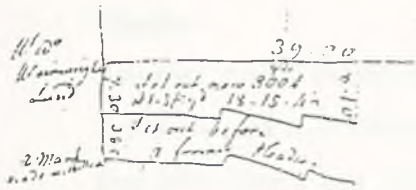


1

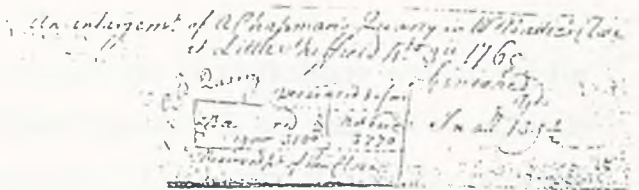


2

Ant. Chapman's new Addition to his Stone Quarry at Little Sheffield 22nd 3rd 1767

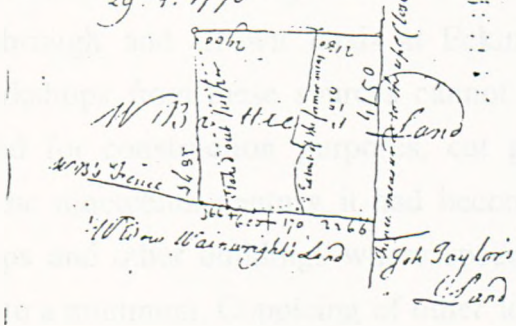


3



4

Another part of W. Platt's Land not out for some quarry 29th 1770



5

Fairbank.⁹⁶ In the nineteenth century the number of slate merchants remained small and were often associated with the supply of timber⁹⁷ (Table 8); examples were John and William Singleton in Tudor Street, Samuel Woodcock and Son in 1833, Robert White at the Crown Saw Mills in Corporation Street and Sales and Teather located in Eyre and Matilda Street in 1893. Nearly all slate merchants' premises were located in areas close to the centre of town.

⁹⁶ SheD388 ibid

⁹⁷ Associated with the supply of roofing materials

Year	Number of Slate Merchants
1833	3
1841	5
1852	3
1862	6
1868	20
1879	24
1893	8

Table 8: Number of Slate Merchants in the trade directories.

Stone slates would therefore have been the characteristic roofing material. With the arrival of the railway, Welsh slate became available more cheaply, replacing stone slates by the end of the nineteenth century. Today most of the remaining workshops of the cutlery industry have roofs of the latter type.

Timber

Another major material used in the construction of workshops was timber for the floor and roof structures. The Sheffield region was not short of woodlands and Mel Jones has argued that before the 17th century it was the principal building material in the area.⁹⁸ The Fairbank papers include many valuations for timber, for example at Stocking's close, Cuthbert Woods, Mrs Poynton's estate at Mosbrough and Crown lands at Eckington, although the use of timber for workshops from these sources cannot be proved. Oak was most commonly used for construction purposes, cut green for ease of working. However, by the nineteenth century it had become too expensive to use in local workshops and other buildings where speculators were trying to keep building costs to a minimum. Coppicing of other local species did not provide timbers of sufficient length or strength for building purposes and could not keep pace with the rapid growth of the building industry in Sheffield. Softwoods were imported from the continent for example from Norway. This was made possible by the extension of the Don Navigation in the 1730s and the opening of the Sheffield canal in 1819.

⁹⁸ Jones, M. 1993 Sheffield's Woodland Heritage Green tree Publications p34

The nineteenth-century trade directories show that in common with all other building suppliers the number of timber merchants increases throughout the century (Table 9).

Year	Number of timber merchants.
1833	12
1841	13
1852	14
1862	14
1868	18
1879	53
1893	25

Table 9: Number of timber suppliers listed in the trade directories.

Timber merchants remained located close to the centre of town. (Map 2). William Morley Sons and Co occupied a site next to the canal basin in 1833, as did William Cocking in 1841. Some merchants claimed that they only stocked English wood: examples are Thomas May and Edward Drury and Son in 1833 and John Ward in 1852. The type of wood supplied would have made little difference to the exterior appearance of the workshops. Inside, earlier buildings are more likely to have oak components in their roof structure rather than softwood, although oak may have continued to be used.

Glass

At the beginning of the nineteenth century there was a glasshouse at Attercliffe, mentioned in 1814, and others at Darnall and Kimberworth.⁹⁹ The main glassmakers of the second quarter of the nineteenth century were Booth and Blunn located at Catcliffe, Close and Clark of Rotherham and Wood and Perkes at Worsbrough in 1833. The shell of the glass cone at Catcliffe still remains (Figure 15). The glass cutters and dealers had their premises, like the majority of other suppliers, in areas close to the town centre (Map 2). In 1841 there was just one manufacturer listed in the directory a Mr. Thomas Jackson at 49 Furnace Hill. After this date only merchants and dealers are listed (Table 10) until 1893 when the manufacturers recorded were Beaston and Co at Rotherham Glass Works, Mellows and Co in Corporation Street, Sheffield, Walter Platts at 150 Fitzwilliam Road, Rotherham and St Helen's Crown Glass works in Lancashire.

⁹⁹ FB134 p 7 20/8/1814, SheD276, and Ebu 14, Fairbank Collection, Sheffield Archives.

Figure 15: Glass Cone at Catcliffe (D. Crossley.)



Year	No of glass mfrs	No. glass cutters	No. of glass merchants
1833	3	8	-
1841	1	7	4
1852	-	3	7
1862	-	5	15
1868	-	7	-
1879	-	7	13
1893	4	-	9

Table 10: Number of glass manufacturers, cutters and merchants throughout the nineteenth Century listed in the trade directories.

It is therefore possible to conclude that glass used in the workshops was mainly produced outside the boundaries of the town and that it was obtained from suppliers and not from manufacturers. The type of glass was not an individually significant characteristic of the workshops associated with the cutlery industry but was used in the construction of characteristic window forms. As with other buildings, the supply of larger panes of glass, made possible by the mid-nineteenth century developments in manufacture, led to changes in the design of windows.¹⁰⁰

Conclusion

This chapter has shown that the builders of the workshops were small craftsmen who undertook particular aspects of a building job until the nineteenth century, when the role of the entrepreneurial builder became more clearly defined and sub-contracting more common. Initially the builders would have designed the buildings themselves, following the vernacular tradition. They may have employed surveying firms such as the Fairbanks to act as arbitrator between themselves and their clients. After the middle of the nineteenth century, building regulations brought a more important role for the architect. Few of the cutlery workshops however have architectural embellishments and this is possibly a reflection on the organisation of the trade and the speculative nature of building. For the most part, only those buildings which were erected by a firm for their sole use show any sign of architectural design. Where architectural design was used, it was to suggest the status of

¹⁰⁰ See Chapter 4

the owner to the outside world as in the case of Globe Works, Sheaf Works and Eye Witness Works.

This chapter has also shown that the bulk of the raw materials used in the construction of the workshops came from local sources. Stone was excavated from nearby quarries situated in what were then rural areas on the edge of the town. Bricks and lime were often produced on the site of the actual buildings and this can be seen in some of the early buildings in the irregularity of the shape and colour of the bricks.¹⁰¹ Although there was an abundance of woodland in the surrounding area, timber was probably largely imported from Scandinavia once the Don Navigation and canal had been built. Glass came from outside Sheffield for the most part, with only two glass makers being recorded within the limits of the town in the nineteenth century, the furthest suppliers being located in Lancashire. All of these factors helped to produce a local style of building which will be examined in greater detail in the following chapters.

¹⁰¹ See Chapter 4