TRADITION AND CHANGE: THE SHEFFIELD CUTLERY TRADES 1870-1914

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In the Sheffield cutlery trades, handicraft production in an isolated location determined to a substantial degree the character of the population. Geographical remoteness and the rapid redundancy of early locational factors necessitated concentration on high quality goods, embodying the technical expertise of successive generations of craftsmen. Reliance on quality and craftsmanship reinforced the small-scale,skill intensive structure of the trades. In turn this confirmed the predominant values of pride in craftsmanship and respect for the artisan. The industrial structure permitted independent production and produced a social structure in which social mobility and self-employment were legitimate expectations. Competition and the absence of large-scale mass-production meant that few fortunes were amassed and few major socio-economic gulfs developed between masters and men.

Faced with growing cheap, standardized competition from abroad, the industry continued to stress and rely upon its traditional reputation for the finest quality production, crafted by Sheffield's uniquely skilled workforce. The structure of the industry and aspirations of its members remained essentially intact: changes were piecemeal and cautious, made within the existing ideological and industrial framework.

This study seeks to encompass the range of economic and social relations in this industry: the origins of traditionalism before 1870, developments in the use of new production techniques and raw materials, attitudes to overseas marketing, industrial structure, industrial relations, health and sanitation, community and culture.

By adopting this approach, it reveals various characteristics which contradict the stereotypic image of British industry in the period 1870-1914. Practices considered as irrational were often informed responses to market conditions. Outwork and handicraft production were not necessarily pre-industrial remnants, waiting to be subsumed into large-scale, 'modern' industry. Neither were industries necessarily homogeneous units: like their workforces they remained fragmented and sectionalised. Finally, handicraft production exerted an enormous influence on wider social and cultural relations in Sheffield.

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LIST OF ABBREVIATIONS USED IN TEXT AND FOOTNOTES

C of C	Chamber of Commerce Minutes.
H.W.	Odom, William, Hallamshire Worthies: Characteristics and Work of Notable Sheffield Men and Women, Sheffield, 1926.
I.L.P.	Independent Labour Party.
L.G.	Board of Trade Labour Gazette.
Lloyd	Lloyd, G.I.H., The Cutlery Trades: An Historical Essay in the Economics of Small-Scale Production, London, 1913.
L.R.C.	Labour Representative Committee.
M.O.P.	Men of the Period, Sheffield, 1896.
N.A.U.L.	National Amalgamated Union of Labour.
N.&Q.	Big and Little Guns of Sheffield: Re-issued from the Sheffield Weekly News,'Notes and Queries', 1890-1900, Sheffield, [n.d.].
S.Pollard, History	Pollard, Sidney, A History of Labour in Sheffield, Liverpool, 1959.
S.C.L.	Sheffield City Libraries, Archives Division.
S.D.T.	Sheffield Daily Telegraph.
S.I.	Sheffield Independent.
T.H.A.S.	Transactions of the Hunter Archaeological Society.
Webb Mss.	Webb Trade Union Manuscripts vol.A18,'The Sheffield Trades'.
W.W.	Sheffield and District Who's Who, Sheffield, 1905.
Y.B.E.S.R.	Yorkshire Bulletin of Economic and Social Research.

INTRODUCTION

The characteristics of the British economy in the years between 1870 and 1914 remain a matter of dispute among historians. Much controversy revolves around the question of whether this period was a watershed in Britain's economic growth. Reflecting the debates of the time, special attention has been paid to Britain's place in the world economy, and the loss of the previously unchallenged position of 'first industrial nation'. It is generally agreed that the 'drag' of an 'early start' played an important role in the declining rates of productivity and growth. Newer competitors, like America and Germany, were unhindered by the debris of industrial traditions, in the form of both plant and business methods. In respect of the latter, particular criticism has focused on the complacency of the British entrepreneur in the face of changing markets, technology and forms of production.

More recent contributions to this debate have stressed the nature of world economic development, which made Britain's 'decline' almost inevitable, a 'natural' outcome of economic expansion elsewhere. Yet more recent commentators, armed with more specific, often quantitative data, based on detailed studies of individual industries or regions, have further revised the traditional thesis. Entrepreneurs devised rational strategies in response to difficult conditions - a kind of 'achievement under adversity'.

Further controversy surrounds the demarcation of this period as a watershed in terms of developments in its industrial structure. Until recently, historians have marginalised older forms of production. The persistence of outwork and handicraft techniques has been regarded as a pre-industrial remnant, an aberation which detracted attention away from the 'real' course of industrial development. This would inevitably result in large-scale, heavily capitalized units of production, manufacturing long runs of standardized products. Management was growing more direct, the frontier of control was being pushed forwards. Craftsmen were losing their skills and their determination of the form and speed of production. Commensurately there was formed a more homogeneous and class-conscious labour force.

However, such conclusions have again been criticised for their

reliance on generalizations based on studies of national, leading sector industries. They neglect more detailed, regional case studies which point to the continued buoyancy of traditional forms of production. These often coexisted with more 'modern' industry and were even linked in a symbiotic relationship, serving the demand for small quantities of goods with detailed and often high quality specifications. Such production ensured the survival of small-scale units of production, of craftsmen, outworkers and factors, of informal industrial relations phrased in traditional terminology. Individual identity, as well as communal cohesion, were still closely related to the structure of the handicraft. The form of production was not simply the result of the various states of the labour market, demand and technology, but the outcome of a whole range of wider social and cultural traditions.

A study of the Sheffield cutlery trades provides further evidence for revisionism which argues that generalizations on the nature and performance of the British economy are severely compromised by detailed regional investigation. Industries frequently fail to conform to such broad notions as 'entrepreneurial failure' or 'modernization'. In the cutlery trades, geographical remoteness and the redundancy of initial locational factors, necessitated the concentration on high quality goods, embodying the technical expertise of generations of craftsmen. Reliance on quality and craftsmanship reinforced the small-scale, skill intensive structure of the trades. In turn this confirmed the predominant values of pride in craftsmanship and respect for the artisan.

Faced with growing standardized, mass-produced, German competition, the industry continued to rely upon its reputation for the finest goods, crafted by Sheffield's uniquely skilled workforce. The structure of the industry and the ethos of its members remained essentially unchanged.

The cutlery trades exhibit the close interrelationship between economic forces and social aspirations, and the wider relationship of work to social outlook. The traditions of this interrelationship embraced and further emphasised the domination - in practice, as well as in ideological preferences - of specialized, quality production and local loyalties enhanced by geographical isolation.

Given the existing preconditions in Sheffield, the continuance of handicraft production, cautiously modified to suit changing market considerations, was a rational policy choice. No competitor possessed Sheffield's hard won reputation or abundance of cheap, skilled labour; but equally, in no other location was the handicraft structure of the industry and resultant social structure so deep-seated.

This thesis attempts to approach these problems on three levels. Firstly, as a detailed examination of a highly localized and inward-looking industry, situated in, to use an oft-quoted phrase, the 'largest village in England'. No comprehensive account of these trades has been undertaken since that of G.I.H.Lloyd[1] in 1913, which although a source of invaluable quantitative data, lacks a perspective for any assessment of contemporary political and economic debates. More recent studies[2] have similarly failed to tackle these trades at this period in a comprehensive fashion. Research has been concerned with broader areas, which mention the cutlery trades as one element in such themes as class and political struggle in Sheffield as a whole.[3] Such accounts deal with cutlery as part of the 'light metal trades', to be contrasted in traditions, structure, performance and values with the newer 'heavy metal trades'.[4] Rarely has the subject been considered worthy of study as an individual entirety.

A detailed examination of these trades, which embraces the whole breadth of economic and social relationships, from industrial relations to marketing, firm sanitation to mechanization, reveals the extent of their diversity. There existed no single industry producing a single product, no collective consciousness, few issues that all were forced to confront. The force of tradition was the only unifying factor - strictly local shared values and understandings, stemming from past experiences.

Secondly, this thesis attempts to analyse the way in which national debates impinged on the consciousness and day to day experiences of this community. When mediated through local circumstances and predilections, a fresh perspective is given to such controversies as boy labour versus apprenticeship or Free Trade versus Protection.

Similarly, as local conditions resulted in quite unique attitudes to contemporary debates, so historians' conceptual generalizations have often proved inadequate as methods of analysis for these trades. A third tier of concern is, therefore, an estimation of the way in which such concepts as labour aristocracy, entrepreneurial failure and choice of industrial techniques have to be modified, if they are to remain as useful tools in the assessment of these trades.

Perhaps one reason for the lack of secondary literature which examines this industry lies with the absence of concentrated sources of authoritative, primary information. Instead, material has to be gleaned from a wide variety of sources. Of particular note is the absence of business records. Self-employed craftsmen and small ephemeral firms, who constituted an important sector of producers, were unlikely to have kept sytematic records, and if they did, none have survived. The available documentation is concerned with the largest firms and is therefore unrepresentative of the industry as a whole. Moreover, this data is mainly qualitative, and totally inadequate to attempt quantitative analyses of the profitability or economic rationality of commercial decisions. Whilst information from White's trade directories has been compiled and used to assess quantitative trends in these trades,[5] through necessity estimations remain largely qualitative and impressionistic.

However, this gap has been narrowed by the extensive use of Parliamentary Papers. Although committees tended to rely on similar witnesses for each inquiry, a selection which precluded 'unrespectable' or 'submerged' sections of the community, Parliamentary Papers are useful in indicating broad themes. A detailed examination of the local and trade press permitted the formation of a factual, systematic and chronological account of events, not previously available. This was supplemented by the use of the records of the Chamber of Commerce and the Cutlers' Company, which provided a deeper insight into the attitudes of manufacturers; and of the few surviving records of trade societies, the Sheffield Federated Trades Council and the Webb Trades Union Manuscripts which are sufficiently complete to allow a reasonably accurate insight into the labour history of the cutlery trades.

Finally, a note on the deceptively simple issue of definition. The number and breadth of products defined as 'cutlery' has been, and still is subject to considerable debate; hence the classification of 'the cutlery trades' is similarly ill-defined. Recent definitions have tended to limit the term to the lighter, smaller implements used mainly for domestic and household purposes: pen knives, table knives, forks, spoons, scissors and razors.[6] Other definitions are broader, including a range of heavier, larger tools which have a cutting edge: saws, files, sickles, scythes and shears.[7] For the purpose of this thesis, the definition is limited to those trades which manufactured spring and table knives, steel forks, scissors and razors. The reason for this preference lie with the industrial structures of the trades involved, and the social and economic status and outlook of their workers. Spoons have been excluded because thay are more accurately classified as part of the electro-plate industry which, with its better paid workforce, and greater level of capitalization, was quite distinct from other cutlery trades. Similarly, heavier edge tools have been excluded because they merged more easily with the engineering trades over this period, and increasingly identified with that group, economically, socially and politically, rather than with the cutlery trades. The cutlery trades as defined in this thesis, stand as a group complete in themselves, homogeneous in the identity of their structures, aspirations, problems and terms of reference.

Footnotes

1 G.I.H. Lloyd, The Cutlery Trades: An Historical Essay in the Economics of Small-Scale Production, London, 1913. Similar criticisms can be made of the six volume French work by C. Pagé, La Coutellerie Depuis L'Origine Jusqu'a Nos Jours, Chatellerault, 1869.

2. See, for example, J.B. Himsworth, The Story of Cutlery: From Flint to Stainless Steel, London, 1953; R.M. Ledbetter, 'Sheffield's Industrial History From About 1700, with Special Reference to the Abbeydale Works', M.A., Sheffield 1971; P.C. Garlick, 'The Sheffield Cutlery and Allied Trades and their Markets in the 18th and 19th Centuries', M.A., Sheffield, 1951.

3. See for example, C. Burke, 'Working-Class Politics in Sheffield 1900-1922: A Regional History of the Labour Party', Ph.D., Sheffield, 1983; H.E. Mathers, 'Sheffield Municipal Politics 1893-1927: Parties, Personalities and the Rise of Labour', Ph.D., Sheffield, 1980; C.O. Reid, 'Middle-Class Values and Working-Class Culture in 19th Century Sheffield', Ph.D., Sheffield, 1976.

4. S. Pollard, A History of Labour in Sheffield, Liverpool, 1959, is a good example of this categorization.

5. See appendix 2.

6. For example, D. Linton (ed.), Sheffield and Its Region, Sheffield, 1956, p.297, "the local usage confines the term 'cutlery' to fixed handled knives, spring knives, scissors and cut throat razors".

7. Working Party Reports: Cutlery, London, H.M.S.O., 1947, p.1. The term was defined as follows: " a) Table, dessert and tea knives, carving knives; butchers; palette, shoe and tool knives; steel forks and sharpening steels. b) Spring Knives, i.e., pen, pocket and clasp knives, pruners. c) Scissors, including surgical scissors. d) Long-handled razors." The 1624 Act of Incorporation , which established the Cutlers' Company as a self-regulating body, included within the jurisdiction of the new company, makers of "knives, blades, scissors, shears, sickles, cutlery wares and all other wares or manufactures made or wrought of iron or steel", M. Walton, Sheffield: Its Story and Achievements, Sheffield, 1968, p.72. A similarly broad definition was abopted in the Final Report of the First Census of Production of the U.K., 1907, P.P., 1912, Cd. 6320, p.207.

CHAPTER 1 AN INTRODUCTION TO THE HISTORY OF THE INDUSTRY BEFORE 1870.

Economic factors to some extent explain Sheffield's preference for high quality cutlery production. Sheffield's isolation and distance from markets and, once its own natural attributes were exhausted, its removal from raw material supplies, help to explain its concentration on high quality products. However, it is possible to determine the use of a 'social factor' - what has been termed a traditional "Mass Inhertiance"[1] in the ingrained aptitude of the population for skilled metal working - which gradually came to rival and surpass physical factors in accounting for the location and form of the Sheffield cutlery trades.[2] The nature of the handicraft - the small capital but great skill required, the independence that it allowed, combined with the need to produce high quality items, had a significant impact on the character of the already isolated, distinct local community. Great pride was taken and value set by independent artisan and craft abilities; no great divide separated masters and men; social and economic mobility were widespread. From the earliest times, guild regulations were drawn up which protected and cemented these values and customs, regulations which represented the culmination of these experiences, and ensured their continued vitality and applicability. The breakdown of these restrictions which accompanied the opening up of labour supplies and increased demand of the late 18th and early 19th centuries, marked a hugh upheaval and disruption in traditional understanding and ways of seeing and dealing with problems, a transformation the results of which were never fully accepted or understood by many members of the trades.

i) The Roots of Traditionalism.

The exact origins of the Sheffield cutlery trades are obscure, but there is an abiding local faith and pride in their ancient and illustrious heritage: the frequent citation of the "Sheffield thwitel" mentioned in Chaucer's Reeve's Tale typifies this belief.[3] However, in the 14th century the industry was not yet localized; it was present in various towns and practised by many village blacksmiths,[4] whilst in Sheffield it was still small scale and often

carried on as a dual occupation in conjunction with farming.[5]

Sheffield's production of cutlery, and early monopolization of the industry, is usually accounted for in terms of its possession of all the neccessary raw materials: wrought iron manufactured from local iron and charcoal, water power, and 'natural draughts' harnessed to aid combustion in bloomery furnaces.[6] Such physical attributes were however, reasonably common in the north of England and moreover, were quite soon to be made redundant by advances in iron and steel making technology. The production of iron, from which cutlery was originally made, was recorded in Sheffield as early as 1161,[7] but the local iron ore was highly phosphoric and therefore incapable of being heated to the high temper which was necessary to obtain a good cutting edge. Thus as early as the 16th century, iron ore was imported from northern Europe, and by the 18th century the use of these high quality ores was far outstripping that of domestic supplies, reflecting a preference, even at this early date, for a higher quality raw material to produce a higher quality product.[8] The manufacture of steel in the Sheffield region began in the 17th century but came to centre there after 1740. This was not only the result of the opening of a canal to Rotherham, which facilitated the importation of iron ore, but because the cutlery trades were exercising considerable local 'pull' as a market for steel.[9] The manufacture of superior quality cutlery was assisted by advances in steel making technology by which steel of a more uniform carbon content was produced, which was thus capable of receiving a more consistently and evenly high temper. However, blister steel, manufactured through the cementation process,[10] had a higher carbon content on the outside, from where the heat penetrated, than the inside. For high quality cutlery therefore, a more even carbon content and temper was assured by breaking up these bars of blister steel, and then bundling them together to be reheated and reforged to form double shear steel; for the best cutlery the process would then be repeated to produce triple shear steel. The lack of uniformity in the composition of steel perhaps promoted the obsession of the early cutlers with the allocation of a precise steel for the quality and type of product which was intended: it was to be an enduring predilection. Moreover, the expense of blister steel[11]

necessitated a high quality piece of workmanship to match the standard and price of the raw material. These tendencies, along with Sheffield's developing reputation as a producer of the finest cutlery, were furthered by Benjamin Huntsman's discovery, in about 1740, of techniques to produce steel of an even more uniformly high quality. This search for a steel capable of forming reliable watch springs, culminated in the discovery of means to further refine blister steel, to produce the even more costly crucible steel.[12]

Although these developments entailed the use of different raw materials from the early iron industry, fortunately, Sheffield was once more endowed with the necessary components: ample local ganister and coal, and access to the Baltic iron ore traffic. However, the application of crucible steel to cutlery production proceeded slowly in Sheffield, the long-accepted reason being the conservatism of the cutlers who were reluctant to learn how to handle the new steel.[13] But this account is inconsistent with the constant attempts by local cutlers to ensure means to produce the finest cutlery, and has been contradicted by more recent research which places the responsibility for slow development on a shortage of skilled labour and capital, and dependence on foreign ores.[14] Furthermore, the will and readiness of cutlers to take action to secure superior raw materials is evidenced by the presence of cutlers and toolmakers, who were vertically extending their premises, amongst the first special steels producers.[15] In the post - Napoleonic period some cutlers continued to make their own steel, although this was primarily to ensure a ready supply of steel made to their own specialist requirments, rather than an attempt to effect cost reductions. Concern with quality above cost considerations is also demonstrated by the unwillingness of most cutlery manufacturers to use cheaper Bessemer steel which became available in 1856, largly because it was of a poorer standard.[16]

Obsolescence of initial location factors is similarly true of power supplies. Water power was said to be a crucial factor in the early localization of the cutlery trades in Sheffield: its first recorded usage was in 1350 and major expansion occured in the 15th century.[17] However, steam powered cutlery grinding wheels were introduced in 1786 and having the advantage of a completely regular

and predictable supply of power, soon superseded water driven wheels. Neither will the presence in the locality of rocks suitable for the creation of grindstones, another requisite for cutlery production, explain the tenacity of the trades in Sheffield. Millstone was always a reasonably common substance and furthermore, by the 1880s it was being replaced by cleaner and safer artificial emery wheels.[18]

Thus, whilst tangible geographical factors may explain the original location of the cutlery trades in Sheffield, their localization, tenacity and success is more difficult to account for in such terms, but better explained by less concrete sociological factors: primarily the abilities and outlook of the local workforce. Although these qualities were in themselves the product of geographical remoteness and industrial localization dependent upon initial palpable physical factors, the effects were cumulative: remoteness produced a community in which most of the workforce devoted themselves to the working of particular metals in a particular manner, creating a highly localized, but highly skilled pool of talent. Sociologically, the traditional dual economy of South Yorkshire, based on the skills of the peasant craftsman and farmer allowed the trades to develop without any major or abrupt dislocations in previous values or economic structures.[19] Gradually, the artisanal abilities of these handicraftsmen compensated for the decline of Sheffield's purely physical properties, but also came to shape and direct the form of the industry. That new metal related technology continued to be attracted to the region was largely the result of the skilled labour which was to be found in Sheffield: "The fact that a highly skilled occupation was becoming localized in the district, led to new inventions being bought there as a matter of course, for nowhere else could the same reserve of skilled labour and supervision be found."[20] Similarly, these new developments helped to diversify the industry, thus keeping it buoyant and further concentrating it in the Sheffield region.

As Sheffield's importance as an industrial centre increased, so its geographical isolation was steadily removed as it was linked to the national infrastructure. Until the development of turnpike roads in the 1700s, the sole outlet for Sheffield's goods were the

chapmen and their packhorses, although this did not stop cutlery reaching London in considerable quantities.[21] By the late 17th century Sheffield manufacturers were selling their goods around the country. Exports however, presented considerably more difficulties: the nearest river port was twenty miles away, and the sea a further sixty miles, and despite the persistent agitation of the Cutlers' Company, the centre of Sheffield was not linked by canals to sea access until 1819.[22] However, as early as 1750, cutlery firms were exporting their goods direct to the continent.[23] Although the quality and quantity of road connections improved enormously over this period,[24] it was the advent of rail transport, with its substantial cost reductions, which proved to be the fundamental development.[25] Despite the indifference of the Cutlers' Company, (who realised that railroads would prove to be fatal competition to the canal in which they had invested)Sheffield had a rail link with London by 1840, and with Manchester by 1845.[26]

By 1870, Sheffield's geographical isolation had been overcome, as far as it was capable of being surmounted: it remained remote and removed from main communications arteries, providing a further economic stimulus to the production of high quality goods which had a low bulk to value ratio. However, as the rest of this chapter will illustrate, the peculiar concerns and values of the cutlery trades can only be understood when such geographical factors are understood in conjuction with the social factors they engendered. The predilections and understandings which developed were so tenacious and deeprooted, precisely because they were originally founded on the economic rationality of available raw materials combined with a remote location.

ii) A Craft Industry and a Craft Mentality in the Early Cutlery Trades.

At the root of the pervasive craft mentality in these trades was the concern for the finished product. As illustrated above, these preoccupations were the economically logical outcome of a remote location with waning physical attributes, which maintained its hold on the industry on the basis of the specialist skills of its workforce. Craftsmen who undertook such trades were necessarily skilled, independent and aware of their abilities, possessing an

outlook which reflected their economic circumstances and which, in turn, further strengthened obsessions with the quality of the product.

Concern for the standard of the product can be seen in the early specialisms which developed in the trades. Before 1624, there arose geographical specialisms, according to which better quality goods were made in the centre of the town than in the outlying villages, whilst the villages began to produce particular types of cutlery: Shiregreen cutlers manufactured forks, Stannington cutlers razors and scissors.[27] In the late 17th century, subdivisions developed according to the type of cutlery. In pursuit of a finer finished product, such divisions were rigorously enforced according to ordinances, (records of which exist from as early as 1565[28]) by which the cutlers regulated themselves. By an Act of Parliament of 1624 the cutlers of Hallamshire and six miles beyond were made a self-regulating autonomous corporation, with powers of detailed supervision of the trades: laws and penalties were drawn up which were intended to ensure the quality of the product and the skill of the craftsman, whilst revenue was assured through the fees obtained from penalties, and the granting of marks and freedoms. The rule of 'one man, one trade' was insisted upon,[29] whilst deceitfully made or marked goods were outlawed, and searchers appointed by the Company to hunt them out.[30] So from an early date, Sheffield cutlers realised that their livelihood was dependent upon the production of, and a reputation for quality wares. Their desire to monopolize the trade in such goods is illustrated by their regulations which barred 'foreigners' from participation in the Hallamshire trades, and also ban the sale of cutlery parts to non-Hallamshire men.[31] This abliity to retain exclusive control of the industry through such guild restriction which regulated both the form and standard of production, was a privilege the loss of which many cutlers would find it extremely difficult to accept.

The next specialism to develop was the subdivision of the processes of production entailed in the manufacture of a particular product: for example table knife forging, grinding and hafting became separate trades, as did pen and pocket knife forging, grinding and hafting.[32] The separation of the grinding and forging

operations occurred first, in the mid-18th century, but the distinction between the forger and cutler was not widespread until after 1800, and even later in some trades. This specialization, which speeded up production, but retained an ever perfected quality, was a response to the increased demand which accompanied the transport developments of this period. Moreover, "the decomposition of a handicraft into its different partial operations,"[33] the main feature of advances in most industries at this time, was particularly applicable in these trades, where production, necessarily divided into forging, grinding and hafting, lay itself open to subdivision. The tools, space and capital needed to undertake any branch of production were both few and inexpensive, but the skill required in such handicrafts was commensurately great.[34] Whilst the huge variety of goods which were manufactured meant that production processes varied almost ad infinitum, the following is a broad outline of the techniques involved in each stage of production.[35]

For his trade, a forger needed only a reheating hearth, hand bellows, an anvil, hammers and fuel, but the craft involved enormous dexterity, judgement and experience. Forgers of small blades worked alone, whilst those who forged larger table blades employed a striker, who wielded the hammer. A rod of steel was first heated up and drawn out with a hammer until it was roughly blade shaped, and then cut off from the rest of the bar, a process known as 'mooding'. On a second heating, the joint was fashioned to which the handle would be fastened (the shoulder), and on a third heating the blade was smithed over, its shape corrected, and the makers name struck on. The blade would then be hardened and tempered - hardened by heating followed by quenching in a vat of liquid and oil, and then retempered or hammered to reduce the brittleness of the blade, and improve its durability and elasticity. In all these processes, experience was required to wield the hammer in such a way that, whilst economising on effort, the steel was made tensile and, furthermore, in estimating the temperature of the steel, which could be accurately assessed by observing its colour changes.[36] The forging of a razor blade was a particularly skilled trade, the steel needing to be unusually

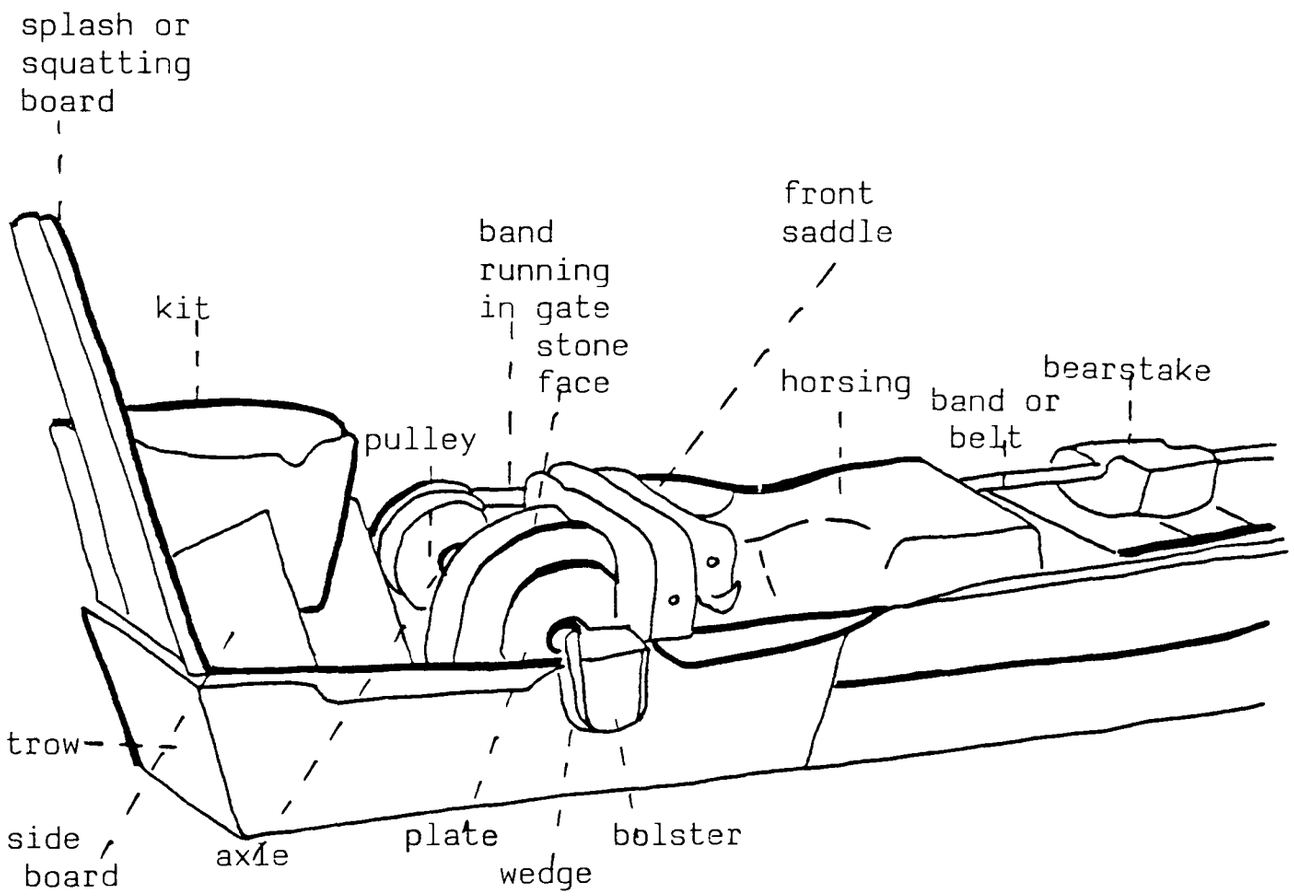
brittle and of differing thicknesses at the back and edges of the blade.

Grinders worked in mills or workshops known as 'wheels', which were divided into rooms called 'hulls'. At the back of each hull was a power shaft with revolving drums, which were connected to the spindles which carried the grindstones that they drove, by means of leather belts or 'bands'. At the front of the room, nearest to the light, were the coarsest sandstones, used in the preliminary grinding process, and behind them, the smaller smoothing and polishing wheels: a set of three such wheels was called a 'trough'. A grinder would sit or lean over the revolving stone, pressing against its surface the blade to be ground. Grinders of large blades sat astride the stone on a wooden saddle, supported by a wooden framework, which was anchored to the floor by heavy chains, as a precaution against the stone shattering or 'bursting' . The stones ran in metal tanks or 'trows', which were set into the floor and contained water which kept the stone wet, thereby stopping the blade from overheating, and keeping down the dust. (See Fig 1.) However, the dust and water sludge, known as 'wheelswarf', covered the apparatus and the grinder. The first grinding process was that of the neck or boulster, on an especially hard, dry stone, followed by rough grinding of the blade to form its convexed shape. The blade was then smoothed and corrected on a finer, harder whitening stone, to remove any deviatons or marks left after rough grinding, and then passed on to be glazed on a small wooden wheel, trimmed with leather and emery grease. The blade would be given a rough and fine glazing to give it a smooth polish, and finally buffed to give it a finished, high polish, on a wooden wheel covered with thick, soft leather, to which iron oxide or 'crocus' polish was applied. Balancing the wheel, dealing with the velocity and hazards of the stone, the dust and flying sparks, giving the blade a smooth surface and good cutting edge, made grinding an equally skilled, but more hazardous and injurious trade than forging.

Finally, a cutler or hafter assembled and adjusted the various portions of the knife. As well as all the necessary parts of the knife, he needed oil, wire, glue and basic tools: drills for boring, files, vices, glazes and buffs. The trade was complicated and diversified by the huge range of handle materials that were

Fig.1 Grindstone for Work on Scissors, Pocket Knives and Razors.

Source: J.B.Himsworth, p.64.



available, from basic wood or celluloid to ivory and mother-of-pearl. To give a table knife a basic wooden handle, flat pieces of wood or 'scales' were riveted to the 'tang' (the end of the blade, fitted into the handle) by boring holes into the tang and wood, through which wire was passed, its stub being hammered flat on a small anvil or 'stiddy'. The wooden handle was then glazed and buffed. One of the many variations on this process, was the hafting of knives in which the tang passed straight up the handle, and was fixed at its end. The trade of the spring knife cutler was considerably more complicated: the variety of styles and sizes was greater and skill was required to ensure that the blades 'snapped' shut, that they did not rub against each other, and that they did not open or close too far and obscure the nail nick.

Each of these processes were in themselves both skilled and labour intensive; collectively the number,complexity, diversity and expertise of the operations were enormous. In Abel Bywater's Sheffield Dialect of 1839, it was calculated that the making of a pen knife entailed 39 different processes.[37] Thus, whilst the handicraft nature of the trades was maintained, subdivision of processes was essential if quality and speed were to be assured.

A further type of specialism was the distinction between high quality, expensive items, and lower quality commoner goods, a distinction which applied equally to the producers of the two different classes of cutlery. The divisions between skilled and unskilled workmen, craftsmen and labourers, noble and ignoble artisans, were old and deep.[38]

That production was so specialized and the goods often unique, that it was the craftsman with his individual skills, rather than major capital investment who remained the foundation of the industry, had a decisive effect on its industrial structure, which in turn further accentuated the independence of the artisans and their belief and pride in their independent status. The operation by manufacturers of self-contained factories, where all workers were employed directly on the owners' products, had always been alien to these trades. Where a manufacturer owned the premises, some men would devote most of their time to his work, but most rented space by the week, and worked on orders from manufacturers all over the town, including the owner of the premises.

In addition to these privately owned works, there were the 'public wheels', the owners of which had nothing to do with the trades beyond the renting out of space and power to individual workers.[39] Furthermore, scattered throughout the town and its environs, there were hundreds of small workshops, often in lean-to sheds, where outworkers worked up goods for a variety of manufacturers and merchants.[40] As capital requirements were so small - it takes only "one and fower pence to make a cutler"[41] - independent production was common and small master status the legitimate expectation. Advantages of such status were not so much financial or occupational, as manual work was still necessary, and profits were small, but social: a small master was on the first rung of the ladder to large employer status, and even as a very small scale employer, he thereby obtained both moral and social dignity.[42] The atmosphere of social mobility was heightened by the difficulties of making large fortunes before 1850, when mass-production was virtually non-existent, entry so easy, and competition correspondingly severe. The "middle ranks" of the 1830s were described as being "nearer both to upper and lower. The trade here is, as it ought to be, republican and not oligarchic. It is in the town, and not in the hands of a few enormous capitalists."[43] Considerable mutuality existed between masters and men, based on similar economic and social experiences, but also craft loyalties and values. This society, already isolated from the outside world, was dominated by a sence of 'the craft' and 'the trade'. Few immigrants came in the 17th and 18th centuries to broaden these inward-looking values,[44] and the town remained clannish and imbued with the all pervasive culture of the independent craftsman. "The six townships of Sheffield were merely collections of hamlets which gradually merged in the course of urban growth",[45] within which there was "an intense conservatism and parochialism, a distrust of 'outside' agencies, and a belief in self-reliance".[46]

iii) Changes Affected by the Early 19th Century Increases in the Demand for Cutlery.

As Sheffield's production of, and reputation for cutlery manufacture grew, as its raw material supplies were exploited and geographical isolation broken down, so it moved far in advance of rivals elsewhere in England. This was paralleled by the increasing

domination of Sheffield's economic life by the cutlery trades.[47] Approximately 2,000 men were employed in all the cutlery trades in 1700, rising to 7 - 8,000 in 1800.[48] Accurate statistics which exist from 1821 illustrate the enormous growth in employment in the first part of the 19th century: 6,000 were employed in the cutlery trades (as narrowly defined) in 1821; by 1851, 11,000 were employed.[49]

Thus, the most marked feature of the responses of these trades to increased demand, was the preference for expansion of the labour force and the manipulation of the old structure and processes to increase productivity and efficiency, instead of major technical changes or innovation. The use of steam power made little change to actual production techniques, and new machinery was accepted and adopted only reluctantly.[50] Fundamental to these changes was the opening up of the labour market affected by the legislation of 1814 which stated that "any person may carry on or work in the incorporation trades though not a freeman, and may have as many apprentices as he likes, and for such terms as he may think proper."[51] Although this coincided with the general abolition of the Elizabethan Status of Artificers, which enforced compulsory apprenticeships, in Sheffield it was the culmination of a power struggle with the Cutlers' Company. Whilst the Cutlers' Company theoretically represented all workers, its constitution allowed for its officers to nominate and elect their successors, thereby effectively excluding the rank and file and making it increasingly oligarchic. The larger merchants and factors, who dominated the Company, allowed restrictive regulations to lapse, and finally abolished them, despite the protests and outrage of the associations of freemen and journeymen. Whist it is possible to see this conflict as a clash of old and new economic moralities, guild restrictions versus free market economics, it does not necessarily follow that the industry was subject to an increasingly acute labour/capital polarization, in which traditional values and understandings became irrelevant and forgotten. Although evidence can be found which suggests increasing capitalization, the handicraft processes and mentality remained influential.

It has been said that the early 19th century saw an increase in the number of larger, more integrated firms at the expense of

the small scale, rented unit,[52] which is seen as the emblem of handicraft practices and values. However, such conclusions often rely too heavily on the use of trade directories, which give undue emphasis to the 'works' of the larger manufacturers, whilst underestimating the unquantified masses of outworkers who could not afford a directory entry. A more fundamental criticism of this view however, lies in the traditional organization of the large firms: huge quantities of goods were still obtained from outworkers, whilst many inworkers were in reality, still semi-indepenent contractors. In 1844, a commentator on the cutlery trades stated that "there are several modes of conducting the manufacture, but the factory system is not one of them....there is no large building, under a central authority, in which a piece of steel goes in one door and comes out at another converted into knives, scissors and razors. Nearly all the items of cutlery made at Sheffield travel about the town several times before they are finished."[54] Thus whilst partnerships increased markedly,[55] and companies boasted impressive premises,[56] at root their values and practices remained very much as before. Firms were proud to remain family businesses, and often accounted for their success in such terms;[57] no use was made of the joint stock legislation of the 1850s and '60s.[58] Most manufacturers continued to live at or near their places of business in the city centre, implying that they were still of only moderate means, and still integrally, practically involved in the business.[59] Similarly, there appears to have been little interest or participation in the International Exhibitions held abroad in the 1850s and '60s, symptomatic of a disregard for developments abroad and changing customer requirements.[60]

However, the maintainance of a system which, although rooted in the subsoil of handicraft enterprise, could be manipulated to accommodate considerable capitalist growth and expansion,[61] was not simply the result of narrow-minded, intransigent traditionalism, but to some extent, the product of sound economic judgement. Exploiting the skills of a highly, almost uniquely skilled and able workforce, which had already obtained a reputation for the finest products, the quality of which newer competitors could never match,

was a sensible response to the increasing foreign competition of this period.[62] Manufacturers benefitted from a system according to which men could be directly employed, laid off as trade expanded and contracted, allowing them to increase productive capacity without major capital investment. This was particularly important in these trades where business (especially that with America, which accounted for a third of all Sheffield's production by the late 18th century[63]) was subject to such wide fluctuations.[64] Moreover, by extending and perfecting the division of labour within the existing handicraft system,[65] a huge range of products could be obtained, with the marks of individuality and quality craftsmanship, which had become identified with the name of 'Sheffield'.

The end of guild restrictions and the opening up of the labour market entailed considerable, even insurmountable difficulties for manufacturers who relied on their own, and Sheffield's reputation for fine goods. Once the number and level of expertise of both apprentices and independent producers was no longer stipulated or enforced, inadequately trained men who were capable of only low quality work, flooded the labour market. When trade slackened, such poorly skilled men were the first to be laid off and, out of desperation, often began independent production, making the shoddiest goods, and often undercutting the wages and prices of 'respectable' workers and manufacturers.[66] Individuals were out-manoevred and undercut by factors and merchants who bought up their work at the lowest possible prices, again undercutting other manufacturers and workers.[67] There was considerable agreement amongst both manufacturers and men that they were "not suffering simply from production exceeding a natural demand, an evil which consequent embarrasments always correct; but from an undue production forcing a demand, at the expense of quality, to the permanent injury of both the manufacturers and the workforce."[68]

For all of the workforce, their unusual status, as neither handicraft producer, nor simple wage earner, meant that they receive neither the total value of the work they produce, nor a set wage, but a gross sum from which numerous deductions were made for rent, power and wastage.[69] Payment was according to complicated and only spasmodically revised piece price lists, in which payment and deductions for the huge variety of different patterns, sizes

shapes and processes in a particular cutlery branch were enumerated.[70] Changes in wage rates were calculated in terms of percentage increases or decreases on these lists. Living standards declined consistently from a high point in 1814 to 1850, wage rates falling significantly beyond decreases in the cost of living.[71]

Simultaneously, the format of the working day was changing: an overstocked labour market, low wages and forced unemployment meant longer hours when work was available, and an end to traditional absenteeism and holiday-making.[72] Steam grinding wheels were not subject to the same seasonal availability of power as water driven wheels, and the resultant intensification of labour, in association with the specialization of grinding as a full-time occupation, in the town, created a marked increase in the incidence of bronchial lung disease known as grinder's asthma.[73] Furthermore, many workers were losing the trappings of the independent, educated artisanal status that they once held or aspired to. An increasing number could neither read nor write;[74] children were being employed, often by their parents, from an early age in the least skilled trades;[75] cutlers were said to show apathy and disaffection towards religion, despite their former strong connections with local Dissenting sects;[76] their poverty and irregularity of employment prevented many from depositing funds in saving banks.[77] Such characterization adds weight to the portrayal of cutlers as an increasingly proletarianized group, being steadily expelled from the economic and social haven of skilled artisan status. However, for a substantial and vocal section of the workforce, traditional skills, values and ideals were still alive and meaningful: attacks on their position and craft techniques, and the spectacle of an increasingly degraded workforce beneath them, made them more aware of their skills and status, and the need to maintain them. Predictably, it was these men, who were still sufficiently numerous, skilled and confident, who dominated working-class responses to the changes of this period, and ensured the characteristically traditional framework of policies and action.

The status divisions between workers were based on a variety of factors. Some commentators have based their deliniations on production processes, marking out the better paid and more skilled trades of forger and grinder as an elite. Such a categorization

would however, amount to an unacceptably large 41% of cutlers being classified as an elite in 1851.[78] Moreover, the expenses of grinders' raw materials, as well as occupational hazards and illnesses which often curtailed employment, compensated for their higher net earnings. Alternative categorizations distinguish between the type of product being made: razor makers were generally better paid, better skilled and more secure than fork makers. However, the most convincing indication of better earnings, status and skill was to be found in the quality of the product being produced, a view evidenced by the presence of large wage differentials in all the cutlery trades.[79] In the spring knife trade in 1840, a few men earnt 40/- per week, the majority 16 - 22/-, but some earnt as little as 12 - 16/- per week: "In the better and finer articles, some may earn 30s. per week, but in general the wages are excessively low."[80] Thus, concern for quality of work, status, independence and guild-inspired craft exclusiveness were to some extent heightened by the creation of a stratum of work and workers from which to defend them. The continued vitality and validity of traditional concerns is well-illustrated by the principles and aims of the craft unions in this period who, by virtue of their continued power and conviction, were a further barrier to the demise of those same traditions.

There was not initially a sharp divide in these trades between freemen who, having served their apprenticeship, paid a fee to the Cutlers' Company to set up as independent contractors, and the skilled journey-men whom they employed: depending on trade, workers were often employers and employed in successive years.[81] These divisions between the two types of skilled men were further submerged with the increased inclusiveness of the freemen's associations, in their opposition to the merchant-factors of the Cutlers' Company, and attempts to re-enforce apprenticeship regulations and general traditional restrictions.[82] With the trade fluctuations and attacks on customary rates of the late 18th century, disputes became quite commonplace for the first time. One of the earliest strikes, in 1787, centered around the efforts of the table knife workers to stop the new practice of thirteen items being counted as a dozen,[83] whilst in 1801, the first of many

strikes was held on the graduating principle.[84] These strikes were met by associations of employers and prosecutions under the Combination Acts.[85] However, the strength of the cutlers in buoyant trade, the absence of significant foreign competition and sufficient deskilled labour to replace the striking craftsmen, is evidenced by the exceptionally high price lists obtained in 1814. A Sheffield Mercantile and Manufacturing Union was formed in 1814 to combat these demands, which were believed to be "immoderate beyond all precedent," and there followed further prosecutions under the combination Acts,[86] and wage reductions which accompanied the poorer trade and general fall in the cost of living after 1814.

The responses of the workers to their declining standard of living and the combinations of employers, were hesitant and backward looking. They were mistrustful of larger-scale combination and continued to favour small societies, a separate one to represent each of the production processes involved in the manufacture of a particular type of cutlery (i.e. table knife forgers, grinders, and hafters societies). This attitude was believed to reflect "that sturdy independence and tenacious adherance to ancient customs and the characteristic self-sufficiency which has always distinguished their members individually."[87] Despite their frequent insolvency and inability to enforce their demands,[88] their parochial craft sectionalism made them incapable of welding their interests in any broader alliance for any length of time. Although various federations did take shape, these were short lived:[88] the benefits of amalgamation were by no means obvious to the local unions, and were to remain so until the industrial militancy of 1911-13.

The aims of these small societies were formed within the framework and terms of reference of the old Cutlers' Company regulations. They stressed restrictive practices, especially the strict application of apprenticeship rules, the importance of quality production and the rigorous application of trade marks, and the need for harmony and understanding between masters and men, based on these foregoing values. Respectable, upright behaviour was expected of trade unionists,[90] and in many ways, these men shared more common values with reputable, principled manufacturers than with the unskilled members of their own trades.[91] Societies

were anxious to prevent changes which would blur the traditional distinctions between skilled and less skilled men, particularly the reduction of wage differentials.[92] They regretted the demise of the guild based unity which had once bound together masters and men, and saw in this change the cause of all the problems which afflicted the industry. The period of the effective operation of the Cutlers' Company's guild restrictions were idealised into an era of familiar, almost brotherly harmony and tranquility: "the respectable manufacturers regarded their workmen almost as families for which they considered it their duty to provide, and when reverses in trade occurred, used to stock up goods... and most reluctantly relinquish their workmen to the parish fund."[93]

The continued desire for, and feasibility of joint regulation of the trades is illustrated by the implementation, albeit short-lived, of two plans to this effect in the 1820s. In 1820, a community plan was drawn up by workmen, masters and poor law administrators, whereby a common fund was formed to provide for the unemployed in the trades, in exchange for the dissolution of the spring knife cutlers union, the poorest society, and efforts were made to return to the moderate 1810 price lists. It lasted only four months, failing as did later attempts at such community regulation because 'unrespectable' small masters and factors continued to undercut prices.[94] A similar plan of 1828, worked out by the journeymen cutlers, in conjunction with the Cutlers'Company and manufacturers, to regularize production and take it away from small masters and factor-masters, failed for similar reasons.[95]

However, guild restriction continued to be discussed and considered a vaguely viable option, because of the unity of interest which still linked many manufacturers and men; perhaps it was belatedly realized by manufacturers of high quality products, for whom the maintenance of Sheffield's reputation was crucial to their own commercial prospects, that the opening up of labour markets had entailed consequences far beyond their control or initial intentions and desires. There existed a general consensus between the 'honourable' sections of both employers and employed, based on common values which were largely the result of shared past experiences and broadly similar economic and social expectations

and understandings. A link, which was to colour and permeate understandings in the industry into the 20th century, was drawn between increased, unregulated competition, involving small masters in particular, and the decline in wages, profits, and, most importantly, standards of quality, which would result in the loss of Sheffield's reputation as the finest quality cutlery producer .[96] The spring knife grinders epitomised these feelings: the end of guild regulation allowed the entry into the trades of many "needy adventurers, men without capital or standing in society, and in many cases without principle," which meant that "immense quantities of the most worthless articles are thrown on to the market, which gradually undermines our character, both at home and abroad."[97]

Thus, an examination of the early history of the industry helps to clarify the form and reasons for the subsequent tenacity of traditional concerns and understandings, by explaining their original foundations and functions. Concern with quality was more than just a whim, but an economic necessity; the handicraft aptitude and skills of the local community were decisive in the continued existence and success of the cutlery trades in Sheffield. Hence the pride in skill and in the excellence of production, the hatred of unregulated competition and unskilled labour which threatened this production, the perceived need for and reliance upon guild restrictions, are realized to be fundamental to the enduring prosperity of these trades in this particular location. This in turn, helps to explain the nature of the ties, in terms of both understandings and economic compulsion, which linked high grade producers, masters and men; in their abhorrence of the unregulated competition of the 'disreputable' factors, merchants and small masters, and in their belief that such production would ruin Sheffield's reputation and, with it their own prosperity.

Footnotes

1. P. Abercrombie, Sheffield: A Civic Survey and Suggestions Towards a Development Plan, London, 1924,pp.9-10. "But there is of course one factor in the existence of Sheffield which is not dependent on externals - the ingrained aptitude of the population for technical work, requiring a high degree of skill - what might be termed its 'Mass Inheritance'. What has happened in Sheffield is (a) tradition (b) a community obviously fitted to accept and maintain the tradition, owing to its natural inherited characters which have been intensified.... Sheffield is then perhaps the largest example of Mass Heredity in an English town and this must exercise a dominating influence upon the continuance of its prosperity. Its remoteness.... may also have contributed something."
2. See, for example, C.H. Desch, 'A Study of Sheffield,' Geography, 1928, vol.XIV,p.497. "In a society the knowledge and skill of one generation does pass to the next. The generations overlap, and men, familiar from their childhood with the details of a craft, grow up in surroundings which favour the development of skill and knowledge in a particular direction. Social inheritance is a real thing, and is one of the most important factors in history." In Sheffield, "The social factor was of greater importance than the geographical."
3. J.D. Oxley, 'Notes on the History of the Sheffield Cutlery Industry,'T.H.A.S,vol.7,1951,p.1. See R.E. Leader, History of the Company of Cutlers in Hallamshire in the County of York, Vol.1, Sheffield, 1906,p.4. For example, it is said that Sheffield cutlers were responsible for the manufacture of the arrows that helped to win the battles of Crecy and Agincourt.
4. A. McPhee, 'The growth of the Cutlery and Allied Trades to 1814,' typed transcript in S.C.L.,1939,p.9. No cutlers were enumerated in the 1379 Poll Tax statistics, suggesting that they were very poor or primarily farmers.
5. Ibid, pp.10-12. Cutlers were present in London, Ipswich, Swansea and Ashbourne.
6. P. Abercombie, Sheffield: A Civic Survey, p.7.

7. G.I.H. Lloyd, The Cutlery Trades: An Historical Essay in the Economics of Small-Scale Production, London,1913,p.67. G.G. Hopkinson, 'The Charcoal Industry in the Sheffield Region 1500-1775', T.H.A.S. vol.8,1963; R.A. Mott, 'The Watermills of Beauchief Abbey', T.H.A.S., vol.9,1969.
8. Lloyd, p.69. Evidence of the importance of imported iron ore is seen in the series of successful battles fought by the Cutlers' Company in the 18th C. to reduce the duties charged on them. G.G. Hopkins,'The Charcoal Iron Industry', p.143.
9. M.W. Flinn and A. Birch, 'The English Steel Industry Before 1850, with Special Reference to the Development of the South Yorkshire Industry', Y.B.E.S.R. vol.6,1954,p.173.
10. K.C.Barraclough, 'The Origins of the British Steel Industry', Sheffield City Museums Information Sheet No.7,pp.3-6. Chests made from refractory material were filled with high quality iron ore and charcoal, sealed, and heated in a coal furnace for five to nine days, after which they were opened and allowed to cool for eight days. The process was thus a long one, a furnace only completing eighteen to twenty conversions per year.
11. K.C.Barraclough, 'The Origins of the British Steel Industry', p.6. The following costs were estimated for steel in 1842:

type of steel	cost of production per ton	selling price per ton
single shear steel bar	£31 - 12 - 0	£48 - 10 - 0
double shear steel bar	£39 - 9 - 0	£55 - 0 - 0
triple shear steel bar	£46 - 0 - 0	£62 - 0 - 0

The cost of the steel is also evidenced by the attempts of the Cutlers' Company to run their furnace to produce cheaper steel 1859-1884. K.C. Barraclough, Steelmaking Before Bessemer,vol.1, London, 1984, p.31.

12. K.C. Barraclough, 'Crucible Steel Manufacture', Sheffield City Museums Information Sheet, No.8. Blister steel was heated in crucible pots, along with other requirements, (depending on customers specifications) such as manganese, until the contents melted. It was then cast into ingots and forged. In 1842, the cost of one ton of forged bar crucible steel was estimated at

£43 - 7 -0, selling at £63.

13. K.C. Barraclough, 'Crucible Steel Manufacture', p.2; K.C. Barraclough, 'The Origins of the British Steel Industry', p.3; R.E. Leader, Sheffield in the 18th Century, Sheffield,1901,p.70. "The wise men of Sheffield obstinately refused to use Huntsman's steel. They complained that it was much harder than anything to which they had been accustomed. But Huntsman found the French more appreciative, and the superiority the foreigners began to attain, thereby raised a competition which forced the cutlers to adopt cast steel." Benjamin Huntsman Ltd., A Brief History of the Firm of Benjamin Huntsman Ltd. 1742-1930, Sheffield,1930.
14. J.G. Timmins, 'The Commercial Development of the Sheffield Crucible Steel Industry', M.A.Thesis, Sheffield University, 1976,pp.5-9.
15. Ibid.p.30. Of ten steel making concerns operating in 1787, six had previously made steel wares, whilst half of the Attercliffe steel makers in 1797 had previously been involved in secondary metal industries.
16. Ibid.p.185; W.M. Flinn and A.Birch, 'The English Steel Industry,' p.175.
17. A. McPhee, 'The Growth of the Cutlery and Allied Trades', p.14. "The lack of small, swift streams doubtless explains the decline of the old cutlery centres of London, York, Beverley, Doncaster, Chester and Gloucester, just as their presence explains the growth of Sheffield after 1500". R.Hawkins, 'The Distribution of Water Powered Sites in Sheffield', Sheffield City Museums Information Sheet No.4.

Sources of Power of Sheffield Cutlery Grinding Wheels

	number of water powered wheels	number of steam powered wheels
1770	133	-
1794	83	3
1841	40	50
1857	16*	80
1865	32	132

(*probably an underestimate, omitting the smaller wheels)

Pollard, History,p.53; Lloyd,pp.443-4.

18. See Chapter 2.

19. D.Hey, The Rural Metalworkers of the Sheffield Region,Leicester, 1972,p.15. "The traditional skills and capital that had been invested, no doubt far outweighed the disadvantages of importing foreign ore along such a bad system of communications, but were the local crafts so well founded because the social structure of the region was particularly well adapted to a system which allowed industry to be carried on alongside agriculture?" See also pp.7-9,60 , small scale farming, in conjunction with the manufacture of cutlery, was still common in Sheffield's outlying villages in 1914. D.Smith, The Cutlery Industry in the Stannington Area, Sheffield, 1977, p.30.
20. C.H.Desch, 'The Steel Industry of South Yorkshire: A Regional Study', Sociological Review, 1922,p.135. See also R.N.R.Brown, 'Sheffield, Its Rise and Growth', Geography, vol. XX1,1936,p.180.
21. A.McPhee,'The Growth of the Cutlery and Allied Trades', p.15; P.C.Garlick, 'The Sheffield Cutlery and Allied Trades and their Markets in the 18th and 19th Centuries', M.A.Thesis, Sheffield University,1951,pp.85-6.
22. A canal was built as far as Tinsley in 1732, but this was not extended the three miles to the centre of the town until 1819. For details see T.S.Willan, The Early History of the Don Navigation, Manchester,1965; A.W.Goodfellow, 'Sheffield's Waterways to the Sea,' T.H.A.S, vol.5,1943,pp.246-54; G.G. Hopkinson, 'The Development of Inland Navigation in S.Yorkshire and N.Derbyshire 1697-1850', T.H.A.S, vol.7,1954,pp.229-251.
23. P.C.Garlick, 'The Sheffield Cutlery Trades', p.86. Broadbents, Kenyons and Roebucks vie for the title of first direct exporter.
24. For details see H.Smith, 'Sheffield: Road Travel and Transport Before the Railway Age', Sheffield City Libraries Local Studies Leaflet. The first turnpike trust in the region was opened in 1756 and by 1760, there were regular passenger coaches between Sheffield and London. By 1787 coaches also left daily for Birmingham, Leeds and Carlisle. That facilities for the regular dispatchment of goods were available is illustrated by the operation in Sheffield in 1821 of 16 carriers and 36 coach operators.
25. H.W.Hart, 'A Brief Survey of the Events Leading up to the

Opening of the Sheffield and Rotherham Railway, 31st October 1838', T.H.A.S.,vol.9,p.271.

Comparative Costs of Modes of Transport from Sheffield to Manchester in the 1830s. (Nature of the commodity not stated)

Mode	Time Taken	Price in Shillings per Ton
canal	8 days	28
road	2 days	34
rail	4 hours	20

26. H.Smith, 'Sheffield: Road Travel and Transport', p.10.
27. D.Hey, Rural Metal Workers, p.9; D.J.Smith, The Cutlery Industry in Stannington, p.19; M.Hemmingfield and B.Woodriff, Forkmaking and Farming at Shiregreen, North Sheffield in the County of Yorkshire,Kingston, 1980.
28. R.E.Leader, Cutlers Company,vol.I,pp.3-10.
29. Ibid., vol.IIp.11. A 1662 bye-law of the Cutlers' Company stated this explicitly, for example, "No user of the trade, mystery or occupation of a cutler for the making of knives shall henceforth use the trade of making or grinding scissors, sickles or scythes."
30. Ibid., vol.II,p.9. A 1625 bye-law of the Cutlers'Company stated that "No person to make knives etc. except he put Steel into the Edges of them, upon pain of 10s. for every offence, and the wares so deceitfully made to be seized and recovered by the Master and Wardens." Ibid.,p.8, "No gold of silver to be put on the blades, bolsters or hafts of any knives, except such as be worth or sold for five shillings the dozen, on pain of 20s".
31. Ibid., vol.II,p.60.
32. A.McPhee, 'The Growth of the Cutlery and Allied Trades', pp.28-29; Lloyd, pp.177-8.
33. K.Marx, Capital, vol.1, London,1982,(Penguin) p.457.
34. For the basic and low value nature of the tools required for cutlery production, see the inventory listed in D.J.Smith,The Cutlery Industry in Stannington, p.18. See K.Marx, Capital,Vol.I,pp.457-8, "Whether complex or simple, each operation has to be done by hand, retains the character of a handicraft, and is therefore dependent on the strength, skill, quickness and sureness with which the individual worker manipul-

ates his tools".

35. For further details on production processes see, P.Smithhurst, The Cutlery Industry, Aylesbury,1987; Lloyd,pp.37-57; C.A.Turner, A Sheffield Heritage: An Anthology of the Photograph and Words of the Cutlery Craftsmen, Sheffield, 1978; J.B.Himsworth, The Story of Cutlery: From Flint to Stainless Steel, London,1953, pp.100-2,125-30; J.G.Jenkins, The Craft Industries, London,1972, p.94; The Penny Magazine Supplement,vol. II, April 1844,p.166; B.Kingsley, A Treatise on Razors, London, 1820.

36. The Penny Magazine Supplement, p.666, cited the following temperature and colour guidelines which were used by cutlers:

Degrees Fahrenheit	Colour of Metal	Item of Cutlery
430	slight yellow	razors
450	pale yellow	
470	yellow	pen knives
490	brown	
510	brown with purple spots	table knives, pocket knives, scissors
530	purple	
555	bright blue	
560	blue	springs
600	blackish blue	

37. Abel Bywater,The Sheffield Dialect, 1839, Sheffield, pp.33-4. His account of "ivvera thing ats dun to a pen knife throot furst tot last", proceeded as follows:

Wa then o'st begin wit blade makker furst:

1st. He mood'st blade.

2nd. Then he tangs it.

3rd. Then he smithies it.

4th. Then he hardens an tempers it, an he's dun we't. Wa then heast spring makker:

1st. He moods it.

2nd. Then he draws tuther end aht an turns it, an's just as menna he'ats fort scale; wa then't blade gooas tot wheel tubbe grun an sich loik.

1st. Nah, thah kno's, we alis groind tang furst, fort mark to be struckn, but ivverra bodda dus'nt.

2nd Then groint blade.

3rd. If its a rahnd ended knoife, tangs is glazed and pollisht.

4th. Then they'r choil'd if they'r not fetheredged ans.

5th. Then they'r grun uppat droi stooan.

6th. Swages is glazed, and backs, if they'r tubbe pollisht.

7th. Wa then they'r lapt.

8th. An then pollisht, an then he's dun we't.

Then heast Cutlers wark al bit warst, bur o think o can mannidge.

1st. He sets scales tot plate.

2nd. Bores t'scales.

3rd. Foiles and fits em.

4th. Nocks em aht an marks springs.

5th. Rahnds springs, an hardens and tempers em.

6th. Then he rasps an sets his cuverin.

7th. Then he matches an pins em on.

8th. Tacks em dahn an dresses t'edges.

9th. Nocks em aht an scrapes t'edges at iron scales.

10th. Puts springs intot hefts.

11th. Squar'st blades an dresses em.

12th. Nails em in joints an sets em.

13th. If they'r stag they want heftin.

14th. (Missed out).

15th. Foils't bowsters.

16th. Ruff buffs t'hefts.

17th. Ruff glazes't bowsters.

18th. Then woips sand off.

19th. Foin buffs em we oil and rottenston.

20th. Foin glazest bowsters.

21st. Then glosses em off an they'r finsht, arnt they Jooa?

Jooa:'Nou lad, not sooa, thahs mist two things. Thah'l loise (wager) if ta dusnt moind'.

Jooa Crocus: 'Wa o can think o nowt else. Wot have a mist, eh?'

Jooa: Dusn't thah know at after't springs is hardened an temper'd, they'r glaz'd an burnisht; an at after he matches an pins em on, he nips em an bores't thick horn hoils, an puts

points in?'

Jooa Crocus: 'Wa mun o did'nt owt to loise for that bit; bur, o avver, let's just reckon hah menny toimes won part or anuther on em gooas throo us hands.'

Jooa: 'Wa then, we'll begin wit blade makker, furst:

Blade makker	toimes 4
Scale and Spring Makker	toimes 4
Groinder	toimes 8
Cutlers or Setters in	toimes 23
	total 39

besoids a menna mooar little jobs, stitch as wettin an woipin etc.

38. R.E.Leader, The Cutlers'Company, vol.II,p.7. The distinction was being made as early as 1624.
39. S.Pollard, History, p.56. In 1824, the Soho grinding wheel, a public wheel in the centre of Sheffield, was rented out to several grinders who occupied between ½ and 4 troughs, paying for them by the week.
40. This structure had changed remarkably little by 1914. See chapter 4 for details.
41. B.R.Dyson (ed.), A Glossary of Words and Dialect Formerly Used in the Sheffield Trades, Sheffield, 1936, p.4.
42. R.E.leader, Sheffield in the Eighteenth Century, p.14. "But he was now the employer of others. And in the moral dignity accruing therefrom lay all the difference. The employed might mean only a man and a boy; a striker and an apprentice; but the cutler was his own master: a freeman in truth. And that achieved, nothing but a few years of patient saving stood between him and the office of master of the Cutlers' Company."
43. John Parker, A Statement of the Population etc. etc. of the Town of Sheffield, Sheffield, 1830, p.18; G.C.Holland, Vital Statistics of Sheffield, London, 1843,p.62,p.68; G.C.Holland, Inquiry into the Conditions of the Cutlery Manufacture, Sheffield, 1842,p.10.
44. E.J.Buckatzsch, 'Places of origin of a group of Immigrants into Sheffield 1624-1799', Economic History Review,Vol.II ,p.50. 2/3 of immigrants came from places less than 20 miles from Sheffield,

and less than 1/10 from places more than 40 miles away. That foreign cutlers came to Sheffield in large numbers in the 16th and 17th centuries to escape religious prosecution in Europe, is a view now broadly discredited: see J.Oxley, 'Notes on the History of the Sheffield Cutlery Industry', pp.4-10.

45. D.Smith Conflict and Compromise: Class formation in English Society: a Comparative Study of Birmingham and Sheffield, London,1982,p.30.
46. Ibid.,p.31.
47. E.J.Buckatzsch, 'Occupations in the Parish Registers of Sheffield 1655-1719', Economic History Review, 2nd. series, Vol.I,1949. By 1719 cutlery workers formed 50% of the male population of working age. A similar indication of rapid growth in the 18thC. is presented by the increase in the number of buildings, mark rents and freedoms registered by the Cutlers' Company; see A.McPhee, 'The Growth of the Cutlery and Allied Trades', pp.23-27.
48. P.C.Garlick, 'The Sheffield Cutlery Trades',pp.16-17.
49. Lloyd, pp.158,445-6.

Trade	No. employed in 1824	No employed in 1851	Percentage increase
Table knife forgers & strikers	400		
hafters	1,000		
grinders	450		
total	1,940	3,750	48
Spring knife blade forgers	240		
hafters	1,470		
grinders	360		
spring forgers	120		
total	2,190	4,000	45
Razor forgers & strikers	80		
hafters	120		
grinders	250		
total	450	800	44
Scissor forgers	147		
filers	196		
dressers	110		
grinders	238		
finishers	115		
total	806	1,200	33
Fork forgers	280		
grinders	200		
total	480	650	26
TOTAL	5,866	10,400	44

50. See Chapter 2.
51. Quoted in Lloyd, p.136.
52. John Baxter, 'Origins of the Social War: A History of the Economic, Political and Cultural Struggles of Working People in South Yorkshire', vol.1,Ph.D. thesis, Sheffield, 1976,pp.20-21;301-304; vol.II,pp.397-399. Baxter does however, focus on all the cutlery trades, including the heavier branches not covered in this study, in which capitalization was greater than in the lighter branches.
53. See appendix 2: The structure of the Industry, p.
54. The Penny Magazine Supplement, April 1844,p.168; Thomas Allen, A New and Complete History of the County of York, London, 1828-31, vol.V,p.51. "The manufacturers, for the most part, are carried on in an unostentatious way, in small, scattered shops, and nowhere make the noise and bustle of a single great iron works". See also P.P.1865,XX, Report upon the Metal Manufacturers of the Sheffield District , by J.E.White, Appendix to the Fourth Report of Children's Employment Commision, case 20,(p.46).
55. J.Baxter, 'Origins of the Social War', p.300.
56. See for example, Joseph Rodgers and Sons Ltd., Under Five Sovereigns, Sheffield, 1911.p.19.
57. Ibid., pp.7,14.
58. P.C.Garlick, 'The Sheffield Cutlery Trades', pp.74-5.
59. R.S.Passmore, 'The Mid-Victorian Urban Mosaic: Studies in Functional Differentiation and Community Development in Three Urban Areas 1841-71', Ph.D.,Sheffield, 1975,p.126.
60. C.Page, La Coutellerie Depuis L'origine Jusqu' à Nos Jours, vol.VI, Chatelerault, 1896,pp.1464-5.
61. See R.Samuel, 'The Workshop of the World', History Workshop Journal, no.3, 1977,p.8.
62. P.P. 1833, V, S.C. on Manufactures, Commerce and Shipping, 1833,(590), S.Jackson,qs2957-59.
63. P.C.Garlick, 'The Sheffield Cutlery Trades', pp.93,145. 6,000 workers were employed in the manufacture of goods for America, 9,000 on those for the domestic market, and 3,000 on those for all other markets. The fluctuations in trade in the 1830s, which were largely caused by swings in American demand, became

known as the "hunger and burst" system, see Lloyd, p.341.

64. See, for example, P.C.Garlick, 'An Old Sheffield Cutlery Firm: the House of Nowill 1786- 1825', T.H.A.S.,vol. 7, 1954. S.Pollard, Three Centuries of Sheffield Steel: The Story of a Family Business, Sheffield, Marsh Bros., 1954.p.35-41.
65. T.Allen, A New and Complete History, pp.52-3.
66. G.C.Holland, Diseases of the Lungs from Mechanical Causes, London, 1843,p.62; J.Baxter, 'Origins of the Social War', p.300.
67. See Chapter 4.
68. G.C.Holland, Inquiry, p.20.
69. See Chapter 6 for details.
70. E.g. Prices of Scissor Forging: 1817 Statement Revised and Corrected with Additions to 1844, Sheffield, 1844; Revised List of Forging Pen and Pocket Knife Blades of 1810, Sheffield, 1844.
71. P.P. 1824, V, S.C. on Artisans and Machinery, 5th Report, 1824, (51), Adams, Bullock and Ward, p.404; P.P. 1833, IV, S.C. on Manufactures, Commerce and Shipping, 1833,(590), J. Milner,qs. 11584-91.

Index of Piece Rates 1810-1851.

Trade	1810	1817-18	1831	1833	1835-6	1842	1851-2
spring knife	100	80	75	55	63-78	38	100
table knife	100		75-100	60	75	30-40	
fork	100			65	63	40	
razors	100		80	90		50	

Source: J.Baxter, 'Origins of the Social War', p.618.

72. Pollard, History, p.39; D.Reid, 'The Decline of St. Monday 1766-1876', Past and Present, no.7,1976; E.P.Thompson, 'Time, Work-Discipline and Industrial Capitalism', Past and Present, no.38, 1967; S. Pollard, 'Factory Discipline in the Industrial Revolution', Economic History Review, 2nd Series , vol.XVI, 1963-4; P.P.1833, IV, S.C. on Manufactures, Commerce and Shipping, J.Milner, qs. 11632-3.
73. For details see G.C.Holland, Diseases of the Lungs; T.Allen, History of the County of York, p.53.
74. Ibid.p.79; P.P.1843, Second Report of the Children's Employment

Commission, Report by J.C.Symons Esq. on the Trades of Sheffield, vol.XIV.

75. P.P.1843, X1V, J.C.Symons' Report; P.P.1865, XX, J.E.White's Report, p.3.

76. E.R.Wickham, Church and People in an Industrial City, London, 1957,pp.35,38. Cutlers formed a stronghold of local puritanism during the Civil War, and also the Dissent of the 1680s P.P.1843,X1V, J.C.Symons' Report, P.P. 1865,XX. J.E.White's Report, pp.10,19.

77. G.C.Holland, Vital Statistics,pp.134-34.

78. C.O.Reid, 'Middle Class Values and Working Class Culture', pp.34-5.

79. Average Earnings in the Cutlery Trades(in Shillings)

Trade		1833	1850
table knife	forgers	21-35	27-40
	grinders	27-40	27-32
	hafters	18-27	17-27
spring knife	forgers	21-31	18-35
	grinders	20-40	20-40
	hafters	15-25	16-30
razor	forgers	26-30	24-33
	grinders	18-50	21-48
	setters-in	18-40	15-30
scissor	forgers	23	28
	grinders	35	35
workboard hands		26	24

Source: Lloyd, p.211.

80. G.C.Holland, Vital Statistics, pp.181-2.

81. F.Hill, An Account of Some Trade Combinations in Sheffield, London, 1860, p.364; J.Baxter, 'The Origins of the Social War',p.16.

82. J.Baxter, 'The Origins of the Social War', p.58; Lloyd,pp. 123,265; P.P.1833,IV, S.C. on Manufactures, Commerce and Shipping, J.Milner, qs.11574-6. Freemen's associations were established in 1785-91, and revived in 1833, comprising both masters and journeymen.

83. A.McPhee, 'The Growth of the Cutlery and Allied Trades', pp.51-2; Lloyd, p.241; See chapter 6, pp.194-5.
84. A. McPhee, ' The Growth of the Cutlery and Allied Trades', p.53; See chapter 6, p.181.
85. J.Baxter, 'The Origins of the Social War',p.150; F.Hill, An Account of Some Trade Combinations,p.526; G.C.Holland, Vital Statistics, p.207; Lloyd,p.244.
86. P.P. 1824, S.C. on Atisans and Machinery, Fifth Report, Adams, Bullock, Ward, pp.401-3. The union comprised 401 firms and 600 masters, with £6749 of funds. See also Lloyd, pp.251-55, 459-69.
87. Lloyd, p.268.
88. P.P.1833,IV, S.C. on Manufactures, Commerce and Shipping, J.Milner, qs.11606-10.
89. J.Mendelson, W.Owen, S.Pollard and V.M.Thornes, Sheffield Trades and Labour Council 1858-1958, Sheffield, 1958, pp.14-18. The first alliance was the Sheffield Mechanical Trades Association of 1822, which included six branches of the Cutlery Trades, but like all such alliances, its unity was shortlived. The first permanent alliance, the Alliance of Organised Trades of 1838 also broke up soon after its foundation, as did the first national organisation, the National Association of United Trades for the Protection of Labour, formed in 1845, which was based in Sheffield.
90. Crookes: The History of a Sheffield Village, Sheffield, 1982,p.64. In 1830, a grinders' society fined a member £12 for drunkenness, whilst in 1844, a grinder who drank too much, and failed to support his family, was wheeled through the village in a barrow by the society members.
91. See C.O.Reid, 'Middle Class Values and Working Class Culture in 19th Century Sheffield - the Pursuit of Respectability', in S.Pollard and C.Holmes (eds.), Essays in the Economic and Social History of South Yorkshire, Barnsley, 1976,p.278. Reid argues that until about 1850, divisions along the lines of 'respectable' and 'unrespectable', which cut across divisions between masters and men, were far more relevant to Sheffield than purely class based divisions.

92. See, for example, To the Journeymen Table Knife Hafters in the Scale Tang Line, Sheffied, 1844, S.C.L.,M.P.3965.
93. Report of the Committee of the Journeymen in the Spring Knife Trade Appointed for the Purpose of Taking into Consideration the Propriety of Applying to Parliament for an Act for the Better Protection of the Incorporated Cutlery Trades, Sheffield, 1821; see also Reply of the Committee of the General Grinding Branches of Sheffield to the Earl Fitzwilliam's Speech at the Cutlers' Hall, 15th September 1844, Sheffield, 1844.
94. P.P. 1833, S.C. on Manufactures, Commerce and Shipping, vol.IV, J.Milner,qs. 11616-7; J.Baxter, 'Origins of the Social War',p. 319.
95. J.Baxter, 'Origins of the Social War', p.311; F.Hill, An Account of Some Trade Combinations, p.537.
96. G.C.Holland, Inquiry,pp.11-21; P.P. 1833, IV, S.C. on Manufactures, Commerce and Shipping, John Milner, qs.11600-3.
97. Report of the Committee of the Journeymen in the Spring Knife Trade, pp.8,15.

CHAPTER 2 RAW MATERIALS, MECHANIZATION AND NEW INVENTIONS.

In the period under consideration, the Sheffield cutlery trades experienced few marked or rapid advances towards mechanized production, nor were there many widely adopted departures in the application of new raw materials, or in product design. The industry as a whole remained committed to the traditional principles and practice of high quality production which embodied the use of the best possible raw materials and the manual expertise of craftsmen. Even when new techniques were adopted, it was generally with reluctance and a vague sense of shame that Sheffield's valuable and hard won reputation for the finest cutlery was being sacrificed. Her trading reputation, associated with high quality, durable, specialised cutlery, was treated as sacrosanct by many manufacturers and men. Mechanization was associated with poor quality raw materials and even fraudulent trade marking practices; most manufacturers would have gladly abandoned the production of common cutlery by mechanized processes to foreign competitors or lesser producers in Sheffield, if the market would have allowed such a policy. The recurring conclusion was that Sheffield should exploit, as far as was possible, those assets which her competitors could not attain or imitate: an exceptionally skilled workforce, an ablilty to produce a huge diversity of specialized designs, and a trading name and reputation unequalled by any competitor in both cutlery, or its major constituent, steel.

The failure of the British manufacturer to appreciate the value of new technology and to install new machinery apace with his German and American competitors has been interpreted as important evidence in arguments which cite 'entrepreneurial failure' as the major reason for the perceived loss of vitality in and even retardation of the British economy after 1870. Moreover, entrepreneurial inertia was believed to be the result of conditions seemingly epitomised in Shefield: the drag of an 'early start', complacency, and the general unresponsiveness of British society to change - "the force of tradition dies hard with the British people and this more than anything else seems to have influenced the

outlook and actions of British industrialists and their employees. So long as it was possible to make an honest penny, British entrepreneurs were content to jog along in the same old way, using the techniques and methods which their ancestors had introduced." [1]

However, whilst traditional considerations were undoubtedly important in shaping attitudes and policy in these trades, it is possible to demonstrate that these principles were frequently the result of careful reflection on market conditions and moreover, were quite rational economic choices, based on the recognition of the value of abundant cheap skilled labour, and a worldwide commercial reputation. Production had been founded on these principles for centuries, and was not, therefore, even if it had wanted to change, free to develop along the lines of its newer foreign competitors. Even if the skilled workforce and specialised production had been scrapped, Sheffield would have been forced to compete on equal terms and in the same markets as foreign competitors, whereas quality, craft production set Sheffield apart from her competitors. Moreover, it is possible to show that Sheffield's manufacturers did adopt new technology, but cautiously and when it suited their evaluation of their position and market conditions.

1870-1889

i) Mechanization and Product Design

The first part of this period was notable for the absence of any significant application of mechanized production techniques to these trades. Although steam power had concentrated production into factories in the city centre,[2] it had little immediate impact on the actual processes of production - even in 1893 no operation was completely mechanized.[3] Although machines were available and widely used in Germany and America,[4] their employment in Sheffield was generally both delayed and halting; even the transition to the steam hammer, debatably the real revolution facilitated by steam power, was a slow process.[5] The stamping of table knife blades out of specially prepared sheets of steel, whilst it was introduced in 1858,[6] did not come into common usage until the 1880s.[7] Machine forging processes were developed for steel forks and spring knives,[8] but the method of 'flying'scissor blades from sheet steel, although

demonstrated in Sheffield by a French inventor in 1862, did not become firmly established until 1892.[9] Grinding and hafting processes underwent even less mechanization than forging.[10] Machine grinding was introduced in the 1850s and was continually improved by Sheffield manufacturers and inventors, until by the mid-1880s, reasonable quality blades could be produced at great speed.[11] In the hafting processes, machinery was applied to the tedious process of filing bolsters, whilst power driven borers were four times faster and involved the application of much less force than hand boring.[12]

Neither manufacturers nor workmen were particularly worried or abashed by the lack of mechanical advance in their industry; infact power driven production was firmly associated with poor quality raw materials, low ablility workmen, and dishonourable firms who, in producing shoddy goods, were sacrificing Sheffield's communal reputation to serve their own ends. The old and reputable houses continued to boast their reliance on traditional production techniques and associated with them, high grade raw materials and skilled workmen. Firms were anxious to state (and frequently overstate) their use of "the latest improved machinery and appliances",[13] which allowed them to conduct all operations on the most advanced lines, but they were ever more eager to stress that this was in conjunction with the employment of many craftsmen who perfected the finish of their cutlery.

Whilst this reliance on traditional values and practices may have been partly the result of inertia and even the dogmatic confidence of the Sheffield industry, it seems that such assurance had a sound rational basis, and that the industry had a fair understanding of its position. The city was fully aware of the mechanical advances being made in Germany and America and of the common, standardized goods that were being produced in ever expanding quantities. In these circumstances, it was arguably more rational for Sheffield to rely upon and to loudly expound the virtues of its historically and industrially unique attributes: the generations of exceptionally skilled craftsmen and the production of some of the best steel in the world. Fine steel and fine

craftsmen were both cheaper and more widely available here than anywhere else, enabling an enormous and diverse range of top quality 'one off' goods to be produced to a high standard and more cheaply than anywhere else in the world. As C.K.Harley has argued,[14] British neglect of new machinery techniques were often less associated with entrepreneurial apathy or failure, as with the abundance, cheapness, discipline and ability of skilled British workmen. Labour-saving machinery, when adopted abroad, was normally to compensate for a lack of skilled labour, and necessarily resulted in the production of more standardized mass-produced goods.

Furthermore, the best and most expensive cutlery still had an appearance significantly different from that of cheaper varieties, and whilst ever snobbery and prestige dictated a desire for the best goods, there would always be a market for the best cutlery.[15] To a considerable extent the market made important demands of manufacturers, who were not free to change their modes of production entirely at their own will. Roseberg found that "Across the whole range of commodities, we find evidence that British consumers imposed their tastes on the producer which seriously constrained him with respect to the exploitation of machine technology. English observers often noted with some astonishment that American products were designed to accommodate not the consumer but the machine".[16] High quality products had become almost synonymous with the trade mark 'Sheffield' and these were the type of goods which most consumers had come to expect from the city.

This being the case, it seems that the Sheffield industry applied itself to the communication of its special assets to as wide an audience as possible, whilst also stressing the inability of competitors to match or imitate these advantages. The skill of the Sheffield cutler was often treated as if it had an imbred, almost mystical quality. One manufacturer contrasted a Sheffield craftman's ability to "feel" a blade, with the workings of the machines he had observed in America: By 'fingering' his blade, the Sheffield grinder "effects all those dainty touches and delicate gradations which no machine, nor no man using a machine can impart".[17] Ruskin too, had a similar respectful admiration for the

Sheffield cutlers and the pride they took in their work: "Upon the maintenance of this pride, the maintenance of Sheffield's supremacy in the manufacture of cutlery largely depends. The best knives are, and always will be, made by hand, and the qualities which are necessary to this system are in Sheffield's hereditary. In dexterity of handling, rapidity of execution, perception of results and honest zeal, the Hallamshire forger and grinder are unapproached".[18] Such a respect for 'hereditary' talent was in marked contrast to attitudes in the American cutlery industry, where Sheffield craftsmen were felt to be too proud and conceited. In America "the honour which he expects to receive belongs only to these who can make the machinery to do the work which before devoured the men".[19]

Until the 1890s at least, machinery was simply incapable of producing the quality of cutlery that most Sheffield manufacturers wanted to sell. However, they were willing to consider and apply new technology when it could be incorporated into their conception of how the industry should progress. Many manufacturers would freely use machines for "drilling, boring and other operations in which its uniformity and exactness made it superior to hand labour, but have far too much regard for the quality and reputation of their best goods to substitute machine work in departments where the highest excellence can only be attained by the employment of the intelligent use of hand labour".[20]

Furthermore, many machines were still at an early stage of development and were quite incapable of producing goods of a fine finish, as well as entailing such negative side effects as, for example, the creation of an excessive amount of dust.[21] It has often been suggested that the various problems with prototype machinery made it more sensible for individual firms to delay purchase until the various 'bugs' had been ironed out.[22] The experiences of the Sheffield trades were with the production of small quantities of goods of a specific nature, often to the customer's order, which made the transition to mass production techniques and the loss of the ability to make minute specifications, a difficult and painful process.

As so often happened, a compromise solution was developed.

whereby machines were used, but they were usually the inventions of the individual manufacturers, operated on their premises alone, and designed with highly detailed specifications and hence a limited usage. The range of patterns and designs that most manufacturers continued to insist upon, and their rigorous individuality and secrecy as producers, provided insufficient stimulus for engineers to design or manufacture machines, the demand for which would be too small to justify the cost of development.[23] Firms at the time[24] and even present-day commentators stress that the fine adjustments and perfect finish required of the best cutlery can only be given by hand: "If scissors are cut....along the whole length of the blade, the final adjustment in their assembly needs a skilled putter together. Folding knives will only 'walk and talk' that is the blades will only open easily and spring back into the centre of the knife with a click, if a cutler has seated each blade. Materials such as mother-of-pearl and ivory are not suitable for machine methods. The higher quality wares are likely to remain craftsmen's productions".[25]

The expense of Bessemer and crucible ~~shear~~ cast steel, and of natural hafting materials, made them as yet unsuitable for manipulation by machinery, and consequently a firm association developed in the minds of many 'respectable' manufacturers and men, that mechanization was synonymous with poor quality goods, and even false marking and the betrayal of trading reputations. The clear association between these factors is illustrated by a description given by a trade unionist in 1886,of the table and butchers' knife trade, where there were four recognized systems of producing the blades: "Firstly by hand, which is the system adopted by all respectable firms for their best goods, and in many instances the commoner qualities; secondly forging by machine, commonly called "goffing"; thirdly, flying or stamping out of common Bessemer sheet steel, and fourthly the system of producing the blades from common pig iron".[26] The trade unionists in particular, felt that the whole concept of mechanization and its necessary consequences were a contradiction and subversion of all the values and techniques on which Sheffield's past and future prosperity were believed to be based.[27]

Trade union opposition to new technology was intense and reasonably successful, albeit not the decisive force in the non-implementation of new machinery that manufacturers often stated it to be. Although the power of the unions had been a strong influence in the 1840s, 50s and 60s,[28] by the 1870s, trade union policy was little more than a supplementary reason, and arguably an excuse used by already unconvinced manufacturers, for the avoidance of machinery. The scornful contempt with which craftsmen treated the new inventions is illustrated in the names by which they referred to them: the new power glazers were called "werelegig polishers" whilst a "gobbed on" bolster referred to a bolster which had been soldered on, instead of being forged in its entirety.[29]

Whilst opposition was phrased in terms of concerns for quality and the maintenance of a trading reputation, these often disguised far more self-interested considerations. In strictly practical terms, mechanization "had the same effect as it had in most towns; it has tended to reduce wages, and has reduced wages, and always will".[30] This was particularly the case when manufacturers claimed that the cheaper production was new to them, and thus a market had to be 'forced' for it, which obliged the payment and acceptance of lower wage rates.[31]

Wages were also reduced, as was the craftsman's status, by the subdivision of labour and deskilling which many realized to be the unavoidable consequence of mechanization. The creation of an unskilled and deskilled labour force was, in turn, seen as the starting point of sweating and excessive competition at the cheap end of the market.[32]

At a more abstract level, machinery, with its 'scientific' approach, contrasted sharply with the craftsman's traditional and almost folklorish understanding of his trade. The craft was passed from generation to generation; precise judgements by hand and eye took time and aptitude to perform to perfection. But mechanization struck heavy blows to the whole mystique of the craft, and on a practical level, often involved the curtailment of the workers' traditional discretionary powers, as production skills were taken out of their hands and placed with technicians. Only recently it was stated of cutlers that "As craftsmen, they have a great belief

in the value of practical experience as a way of acquiring a knowledge of one's medium and a corresponding disbelief in the power of some young fellow in a lab to sit down and without any 'know how' of the craft, work out answers to problems from abstract principles - principles which they, life-long craftsmen, cannot understand".[33] As has been indicated, many manufacturers were at this stage prepared to acknowledge and to continue to use these skills instead of replacing them, often inadequately, by machines.

However, perhaps as a result of the exalted position given to hand labour by most trade unionists, there was only a very slow realization that hand labour could be subdivided, degraded and sweated just as easily, if not more easily than under the impact of labour saving machinery. The sweating of hand labour infact became more intense as it came increasingly into competition with cheap mechanized production at the bottom end of the market. The very ease with which the cutlery trades could be made more productive through further subdivisions of labour and subcontracting, thus guaranteeing a continued diversity of patterns and styles, without the expense of the purchase of machinery and expansion of premises, was a major reason why manufacturers found themselves able to compete effectively without large-scale mechanization for so long.[34]

Further evidence of the awareness of Sheffield's cutlery manufacturers, and of their appreciation of market conditions, lie in the numerous instances of their willingness to implement new technology as and when they considered it to be prudent. During the bitter and protracted strike in the scissors trade in 1876, substantial steps were taken towards mechanization in order to counteract the restrictive practices of the unions,[35] and in 1886 it was stated that the depression "has stimulated invention in labour saving appliances", and "has enabled us to keep up the gross volume of our trade....the introduction of machinery has largely increased the productive power of some of our staple trades".[36]

Moreover, whilst few old-fashioned, prestigious firms would admit to the employment of much machinery[37] even in this period, there were some newer firms which were much more ready to exploit the new technology. James Drabble and Co. were using machinery in all their production processes by 1862, although they were the only firm to do so in Sheffield at that time.[38] By 1889 Staniforth's

output of machine forged table blades had reached 7000 to 8000 dozen per week and demand for them was so great that more new machinery was installed.[39] Another such firm was John McClory and Sons, who by 1888 were freely admitting to the production of cheap, but decent and attractively finished goods, and even chastised the elitism of the old-established houses: "A few years ago, partly owing to the apathy of the older firms, who in a great measure confined themselves to the manufacture of the more expensive classes of cutlery, the enormous trade in cheap and middle class goods seemed likely to fall into the hands of German rivals."[40]

However, it seems that these firms who ventured into the world of machine-made cutlery were more recently established than the well-known 'giants' like Rodgers and Wostenholms,[41] and were presumably more capable of coming to terms with lower quality production as they did not have the reputation and associated trading responsibilities of the older established houses. It appears that for many of the older firms, there was a great loss of prestige and status, almost a betrayal of their ancestral reputation, involved in producing and marketing common goods. As late as 1946 the Working Party Report on Cutlery still felt obliged to stress that it was quite possible to market lower quality cutlery "without loss of prestige and self-respect".[42]

Concerns with quality, and the realization and exploitation of the value of Sheffield's trade mark and skilled craftsmen, were similarly all-pervasive in attitudes towards product design and development. Considerable time and emphasis were placed on the design of additional features, or improvements to existing products, if these developments would enhance the quality, uniqueness or usefulness of the original product. Very rarely however, did these developments lead to the creation of a totally new form of product or design. From the mid-1850s, there was little change in the length and design of cutlery,[43] and product development concentrated on minor adaptations, which overall, markedly improved the capabilities, operation and quality of the goods, but did not alter their basic form.[44] Typical developments included a rotary penknife which kept its blades from the dust,[45] a blade for a sportsman's knife which could take virtually any attachment;[46] a method of fixing table knife blades to their ivory handles which prevented any

unscrewing;[47] case cutlery packaged in attractive boxes[48]; and fork guards.[49] Such designs were eagerly patented by the inventing firm, and were considered to be a further sign of the firm's reputation for, and interest in quality precision workmanship.[50]

More substantial alterations of design, which involved considerable shifts from traditional ways of producing or understanding a product, were undertaken with far more reluctance. In the same way that new machinery was often delayed, there usually ensued a long delay between the patenting of a new product and its commercial manufacture in Sheffield. There was no lack of inventive talent or foresight amongst so many skilled and dextrous craftsmen and practically minded manufacturers, but there appears to have been a reluctance and even inability to put ideas into practice. The hollow-ground razor for example, which became an extremely popular speciality of the cutlery producers of Hamburg was not manufactured in large quantities in Sheffield until the late 1870s, although it was patented by a Sheffielder in 1828,[51] and advertised by a local firm in the Iris in 1842.[52] By the time production in Sheffield was attempted on a large-scale, it was a difficult struggle to win back sales from Hamburg, which had now acquired a reputation for the best hollow-ground razor - and a reputation was a crucial factor in the high-class cutlery trades.

These delays and failures to keep ahead were commonly blamed on the resistance of the men, who were accused of opposition to all innovations. Their usual form of resistance was to demand what manufacturers claimed were excessive prices for work on new products, and to charge 'extras' at exorbitant rates, both of which were completely out of proportion with the amount of work done. Manufacturers complained that even if the new pattern involved less work for the men, who should therefore be paid less, the men always demanded a higher price on principle. "The effect of this policy is not only to prevent the development of the trade, but to severely cripple it",[53] claimed a table knife manufacturer, who had "several new patterns by me, which I am confident would take well, if my men would only charge for them in proportion to the work that is in them, and so let me sell them at a reasonable figure; but they refuse to do so, and they remain in my drawer, and we go on turning out the old patterns".[54]

It is clear that workers did demand high prices for new products, when they were able to enforce their demands, but this ability diminished as the period progressed.[55] However, it seems unlikely that the unions, even in this earlier period of comparatively greater strength, would have been capable of single handedly holding back developments if the manufacturers had been committed to their implementation. The men themselves were frequently the designers of new products and patterns, and claimed that being the inventor, they were the most competent judges of the amount of work and therefore payment involved in a new design.[56] The unions believed that new patterns were being used as a method of bringing down the price of labour; they would not be resisted if they provided a fair wage.[57] Craftsmen were generally reluctant to abandon their hard won skills for the new techniques which new products often involved.[58] They were accustomed to the old work, often the owners of all the necessary tools, and were reluctant to recommence the laborious process of learning different techniques in which, because of their advancing age, they believed it to be impossible to attain such high expertise and therefore wages.[59] As few old hands would learn new techniques, there were fewer craftsmen available to teach the new skills to the next generation.

However, manufacturers also seemed to be quite content to diversify along tried and tested lines, adding further variations to the already bewildering range of available patterns. By the late 19th century, the number of patterns and designs in all shapes and sizes was quite astonishing and advanced Sheffield's reputation as a producer of small, detailed orders of precise almost customer-made quality cutlery.[60]

ii) Raw Materials

Attitudes towards the choice of raw materials illustrate a similar preoccupation with the production of reputable, high-class goods and with the reluctance to make changes which contradicted traditional understandings and the perceived reasons for success. The craftsmen mistrusted devices and materials which had not won the sanction of their own usage as well as that of many previous generations of artisans. For employers, financial pressures to introduce cheap raw mateials were probably mitigated

by the overwhelming importance of labour costs in the total costs of production.[61] Moreover, amongst the 'respectable' members of the trade, the period was marked by a growing concern over, and even disgust with a buying public which was increasingly unaware of, or unable to distinguish the different types of raw materials used in its cutlery, to such an extent that it seemed indifferent to the quality and durability of the cutlery that it purchased.

For the grinders, the most significant change of the period was the introduction of emery grinding wheels which replaced traditional grindstones and avoided many of the dangers to health and safety which were inherent in the use of the grindstones.[62] The emery grinding wheel was introduced into Sheffield in the 1880s by a local engineer, but it was slow to win acceptance amongst the grinders. The reason for its unpopularity stemmed from the fact that the properties of the new wheel were so unlike those of old grindstones, that to use it involved a certain amount of relearning and adaptation. The emery wheel could not initially run in water and thus became very hot, sometimes causing the knife blade to heat up and lose its temper. However, the wheel was developed to enable it to run in water like grindstones, but unlike the latter, it retained a good 'cut' for 12 to 18 months. It ran safely at 5,000' per minute - a speed which made it unnecessary to exert as much pressure on the blade, thus making grinding lighter and quicker. Despite these advantages the wheels were adopted only slowly, partly because of the innate traditionalism of the grinders, and partly because of the expense of the emery wheels: £6 to £7 was a significant outlay for a grinder even if the manufacturer allowed payment in instalments.[63]

For the industry as a whole, the most influential developments in the uses of raw materials were in the field of hafting materials, where the rising and eventually exorbitant prices of natural materials forced manufacturers to consider cheaper substitutes. The rise in the cost of ivory in the early 1870s inflated prices by 30 to 100%,[64] and although in 1874 they began to fall again,[65] they rose to new peaks in 1875,[66] a result of the competition of an increasing number of foreign manufacturers for an ever decreasing supply at the major auctions. By 1881 further huge increases in

the price of hafting materials were once more forcing up the list prices of cutlery.[67] The cost of Manilla shells rose from £160 to £240 per ton, in just ten months,[68] whilst ivory had doubled in price between 1879 and 1883, until it was fetching £1,000 per ton.[69] The largest cutlery manufacturers attempted to keep their prices down by combining ivory cutting, which was generally a separate industry, with their cutlery production,[70] but it was an impossible task whilst an expanding market brought an ever diminishing supply of ivory.[71]

Faced with such circumstances manufacturers were forced to experiment with and use various substitute materials. Celluloid was first used in the late 1860s, vulcanite, ebonite and xylonite were in wide usage.[72] Considerable quantities were used in the production of cheaper cutlery, the largest and most prestigious firms experimenting with, and pioneering its uses. They were presumably keen to make economies on that part of the tool which would not effect to its essential quality - its cutting edge, and thus, as far as possible, retain a reputation for a fine and durable blade, but at a reduced cost. Moreover, these makers were anxious to attempt to underline the qualitative advantages of the new materials.

Illustrating the readiness of the institutions of the trade to encourage and support inventive and new approaches and initiatives, the Cutlers' Companies of Sheffield and London held a joint exhibition in London in 1879, at which awards were given to firms for technical excellence and the implementation of new ideas in the trades. Winners included a firm who had developed the manufacture of celluloid fork handles which retained their appearance and durability in hot climates [73] - a product obviously designed to appeal to the cheaper colonial market. Joseph Rodgers, the most prestigious firm in the trades, were at the forefront of these developments and were keen to broadcast their successes. By 1879 they were manufacturing "ebonite secure handle table cutlery"[74] in large quantities, and again stated their reasons in terms of concern for the quality of the product, and not its cost: it would neither crack, lose its finish, nor become loose, as bone and horn frequently did in hot climates, and it weighed much less. The cheapness

of these substances was stated almost as an afterthought, the firms being anxious to convince purchases that celluloid would "ere long become the recognised staple material" and ivory would "no longer be regarded by any class as indispensable".[75]

However, it remains debatable how far these companies were themselves convinced of this, and to what extent their customers were ready to believe them. There was still a large body of purchasers who would always want ivory, horn, bone or mother-of- pearl handled cutlery, precisely because it was so expensive and an obvious sign of affluence and 'good taste'. Moreover, these were the consumers for whom many manufacturers and workers in Sheffield were most ready and able to cater. If traditional materials were really a thing of the past, why were noted manufacturers still so keen to advertise their presence and extensive purchases at the various quarterly ivory sales?[76] Moreover, considerable time, effort and money were spent in finding more economical ways of using traditional hafting materials, but in such a way that the cutlery could still be marketed as 'the finest quality'.[77]

However, the greatest controversy concerning the use of newer, cheaper raw materials surrounded the types of steel used in the production of cutlery blades. The quality and durability of Sheffield blades were felt to be the major factor in the fame and continued prestige of the city's products. The use of cheaper steels, and particularly when these blades were falsely marked so as to imply that they were of a higher quality, was seen by many manufacturers and men as a dishonourable betrayal of Sheffield's commercial history and fame, and in cutting the links between the trade mark 'Sheffield' and high class goods, a policy that would fatally damage her future trade. If enough cheap steel was used, Sheffield's trading reputation would become akin to that of Solingen or Conneticut, and as it was believed that foreign competitors could produce these goods far cheaper anyway, Sheffield would lose customers on two counts: those requiring the best goods would lose faith in the 'Sheffield' trade mark, and those wanting low prices would still find it cheaper to buy elsewhere. Infact by 1886, the use of poor steel and its false marking were frequently

cited as fundamental causes of the depression in the cutlery trades.[78]

Inevitably, the craftsmen of the industry saw the use of cheap steel as an unavoidable consequence of the increased use of machinery, but were both despairing and indignant that the customer appeared to know and care so little about these distinctions. The whole question of the type of steel used by manufacturers thus became one of the touchstones of the attitudes that distinguished what were believed to be 'respectable' manufacturers from the 'unrespectable'. As so often in this industry, commercial respectability was closely associated with a respect for and adherence to time-honoured notions of trade etiquette, the values and practices which had made the industry great.

The type of steel which produced the finest cutting edge was crucible steel. It has recently been suggested that the quantity of crucible steel made in Sheffield was still increasing right until the end of the century: over 100,000 tons were turned out per year.[79] Although the fast growing tool and crinoline trades consumed a substantial amount of this output, the cutlery trades remained an important outlet for steel-makers, absorbing "a much greater quantity of steel than is generally supposed."[80]

Increased production did not however, appear to reduce the cost of this expensive metal. This was partly because the crucible steel makers remained very much a part of the old, small-scale steel making world, with cautious, conservative ways and the physical constraints of cramped central locations,[81] far removed from the world of the new bulk steel makers. Their conservatism may have been to some extent associated with their close relationship with the cutlery housed they served. Marsh Brothers, for example, "remained a family firm, relying as they had been want to do on their own capital only; they were too deeply interested in the small, old-fashioned cutlery and special steel trade to plunge into the unchartered sea of bulk-steel with its new science and new outlook".[82]

Technical and cost cutting developments which were affecting this industry were largely ignored in Sheffield, mainly because the purchasers believed that established methods produced the finest

steel - hence the unpopularity of the Siemens Furnace in Sheffield.[83] Small, speciality steel makers survived because the tool and cutlery manufacturers with whom they traded were prepared to bear the expense of speciality steels, often produced according to their own specifications.[84] The largest, celebrated cutlery firms placed such emphasis of the standard of their steel, that they considered it worthwhile to produce it for themselves. Joseph Rodgers decided on their own steel production in 1887, and went to considerable lengths to purchase sites.[85] However, they stressed that the reasons for this policy of "obtaining control of the whole process of manufacture" were to maintain the principles of the company motto - quality first.[86] The reputation of a quality steel manufacturing firm could be made or broken by the approval or disapproval of its cutlery producing customers.[87] For example, John Vessey and Sons were former cutlery manufacturers who realised the market potential for speciality steels in an industry that cared so much about quality and detailed specifications. They became producers of "steels specially suitable for the manufacture of all kinds of cutlery, especially pen and pocket knives, surgical instruments, razors, scissors....butchers knives and cutlery of every description."[88]

Even cutlery manufacturers who operated on too small a scale to contemplate their own steel production,frequently stressed the superior qualities of the steel they bought and used. This policy of linking the notions of the best quality steel with the best quality cutlery and then constantly reiterating the connection to the buying public was aguably a conscious and sensible strategy on the part of the Sheffield cutlery manufacturers. It further helped Sheffield, as the famous home of quality steels, to retain the 'quality gap' that separated her from her foreign rivals. Thus, Camille Pagé, the noted cutlery specialist could still affirm in 1896 that Sheffield cutlery had "une reputation montrée qu'ils devait surtout à la qualité superieure des aciers qu'ils emploient."[89]

However, with the development of a growing market for medium to low priced goods, and of machinery for manipulating lower quality steel, the manufacture of cutlery which used Bessemer steel became increasingly common in Sheffield. Nevertheless the consensus

opinion of the trade, in public at any rate, was that such production was somewhat disreputable and discreditable, and that it would do very little for the reputation or the pocket of the individual manufacturers or the Sheffield trades as a whole. The stamping of cheap blades with indications of a higher quality was treated, again in public, as a cardinal sin and betrayal of everything for which the Sheffield trades believed themselves to stand.

The use of Bessemer steels was thus inextricably linked to the scandalous and distasteful world of false marking and fraudulent commercial practices. In an industry noted for and constantly reiterating its concern for quality, the use of Bessemer steel, correctly or falsely marked, was inevitably a cause for wide-ranging comment and criticism, all of which damaged the reputation that the trades so desparately wanted to uphold. The whole issue developed into a scandal of national proportions,[90] with The Times reporting that half of Sheffield's cutlery was infact made from Bessemer steel,[91] allegations which were corroborated by The Ironmonger.[92] Whilst notable manufacturers did their utmost to reinstate confidence in the industry,[93] the problem was that section of manufacturers who felt no loyalty to these traditional values and in their 'selfishness', jeopardized the credibility of the majority.

To the leaders of the local craft unions, the use of Bessemer steel was an almost sacrilegious betrayal of all the principles they held dear. Such practices, especially when combined with fraudulent marking were believed to be the main cause of the depressed state of the trade, but also the decline in their wages and status, as skilled workmanship was both unnecessary and unachievable on poor quality steel. They quoted the American consul in Sheffield who had publicly stated that the thousands of tons of Bessemer steel which were sold by Sheffield cutlery manufacturers as crucible steel every year would "very speedily destroy all confidence in Sheffield steel, and render abortive the enterprise of our manufacturers and skill of our workmen, for it is useless to put good workmanship upon bad materials."[94] Even if a fine finish had been needed for a Bessemer blade, it was far more difficult for the craftsman to harden and sharpen this type of steel.[95]

Thus, such poorer quality raw materials like, and at the same time closely related to mechanized production techniques, could not be separated from fears of deskilling and the decline of craft techniques.

1889-1914

i) Mechanization and Product Design

This second period was marked by a far more concerted and large scale application of new machinery, techniques and raw materials. As the effectiveness of machinery increased and it became possible to produce a standardized, neat, middle quality item - which foreign competitors were both manufacturing and selling in large quantities to the expanding lower quality market - resistance to new developments became less judicious. Moreover, labour shortages at home, and the growing realization amongst trade unionists that working at factory based machines could ensure much better pay and conditions than sweated handicraft outwork, ensured that both employers and employed were more ready to consider change.

However, mechanization and innovation in these trades never amounted to anything approaching a wholesale transformation. Conventional practices and values were never discarded and changes were more in the nature of variations, initiated only with great caution: the old system was modified and adapted but never abandoned. The reasons for this were threefold: mentally and psychologically, traditional values and understandings had sunk such deep roots; the old system still contained considerable commercial vitality; and finally, it coexisted quite easily and efficiently side by side with newer developments.

The larger-scale conversion to mechanized techniques of production in Sheffield came with the successful development of such machines by competitors, and their use to capture the ever expanding low to medium quality market. German and American manufacturers had become particularly proficient with razor and scissor making machinery, which had reached a high level of perfection by the 1890s.[96] By the early 1900s, Sheffield cutlery firms were importing such quantities of German stamped scissor and razor blades, and finishing them in their own workshops, that a Remscheid firm established itself in Sheffield in 1902, to serve this market.[97]

Production of the blanks was completely mechanized; they were neat and well-finished, and stamped out at a rate of 1,000 per day, whilst two men could only hand forge five to six dozen in the same time.[98] By 1913, the Cutlers' Company was threatening to prosecute (under the Merchandise Marks Act) anyone who used imported German blanks in goods which they marked 'Sheffield', action which necessitated the establishment of another German firm in Sheffield.[99] many manufacturers were said to prefer such products, finding them "superior in finish and neatness to local products , which enabled the finishing process to be performed with less expenditure of time and labour".[100] Increasingly, the assumption that mechanized techniques could only produce poor quality cutlery, was being publicly questioned. The challenge thrown down by the razor grinders in 1894 to machine forged and flied producers, to manufacture a similarly high quality blade, was taken up with gusto,[101] but until the end of this period, arguments continued to rage about the merits of the two systems for cutlery production.[102] Sheffield manufacturers patented razor and scissor grinding machinery in the 1880s which possessed the additional virtue of making a neater blade which requiured less finishing.[103] However, as always, the machinery did not approach the levels of perfection which manufacturers required for best quality cutlery: the best razor blades, and the edges of the blades of cheaper razors were still hand-ground by craftsmen,[104] and it was not until 1910-15 that the heaviest razors could be machine ground, or the 'shoulders' cut in by machine.[105] The production of razor blanks by hydraulic presses, did not make significant advances in Sheffield until after 1903,[106] whilst machine table blade grinding only became widespread in Sheffield after 1911[107] and machine table and pocket blade forging not until 1914.[108]

Thus mechanized production, whilst it was making strides in Sheffield was still both delayed and halting in its adoption, certainly in comparison with America or Germany. It was not until 1905 that it could be declared that "There is no doubt that the machine age has now been entered upon. After years of experimenting and the expenditure of large sums of money, the stamped blade has been brought to such perfection that of some patterns they are

almost if not quite equal to the forged article."[109]

However, such reports must be treated with caution. "They persistently exaggerate the importance of invention, so that even in the most resolutely handicraft sectors of production, it often seems - on the evidence of single instances - that mechanization is about to take off. The trade reports from Sheffield in The Ironmonger, for instance, are filled with trials of machinery in the late 1860s and 1870s, yet the Sheffield trades remained overwhelmingly handicraft right down to 1914."[110]

Accompanying these improvements in available machinery, and equally, if not more important in convincing manufacturers, and pushing them towards their adoption, was evidence that the market for cheap and medium standard cutlery was large, expanding and very lucrative, whilst that for high quality expensive goods was not experiencing anything like the same expansion. The demand for cheap, standardized goods for the colonies was increasing as,during the 'Great Depression', was the demand amongst the British working classes for a similarly standard, affordable item.[111] Thus, from the 1890s, it is possible to discern a gradual change of emphasis: the realization that Sheffield's industry could not survive, let alone thrive on expensive production alone;[112] and concurrently, attempts to reconcile cheaper production with it, and its producers previously ignominious reputation.

However, whilst lower quality production was now publicly divulged by most leading manufacturers, for many it was still accompanied by an obvious sense of unease. That a firm also manufactured handmade, top class goods was usually mentioned in the same breath as discussion of their standard products, and these latter, and their purchasers, were treated somewhat condescendingly and patronizingly.[113] The traditional uneasiness at having to participate in such trade was reaffirmed by a trades unionist in 1892[114]: "Makers of the best cutlery are ashamed at the present state of things, but they are so often induced to deal in these common class of goods because they are ordered along with their better quality. Except for that, some would not deal in that common quality." It was frequently and emphatically stressed that two different markets were in existence, and that cheap goods were not directed at the discerning American or European buyer; they were

only intended for "the tastes and pockets of the ever growing populations of distant lands, at the present in course of development".[115]

Nevertheless, Sheffield's manufacturers, unlike their American counterparts, never really adapted themselves to the ever increasing demand from the developed nations for a well-finished 'throw-away' item like the American safety razor:[116] durability and lasting quality were standards too deeply ingrained in most Sheffield producers, to allow the easy adoption of this type of production. Thus in 1911, the Cutlers' Company was still finding it necessary to remind its members that "low quality goods are demanded in commerce".[117] However, it too was still disgruntled that this had to be the case; that so many consumers either could not, or worse still, would not pay the price for a superior article: "needless to say, the Company would be glad to see all Sheffield goods of the best possible quality, but it must be born in mind that low priced goods are needed, and that the standard of quality of low priced goods could not possibly be higher than that the material should be the best which can be afforded at the price consumers are willing to pay."[118]

Compounding these pressures towards increased mechanization were those affecting the supply of labour within Sheffield itself: manufacturers cited union mil itancy, intransigence and traditional practices as important in inducing them to introduce machines to reduce the men's bargaining power by replacing their skills. In the 1890s it was claimed that unions not only prevented the introduction of machines,[119] but combined this, in periods of good trade, with other restrictive practices which, in limiting the number of men in the trade, ensured their retention of a powerful bargaining position.

During the boom conditions at the turn of the century, The Times published a vitriolic attack on the cutlery unions in which it described these supposedly deliberate policies in which they persisted, despite the fact that trade was flooding away to more efficient, reliable, mechanized competitors.[120] Furthermore, whilst there was acknowledged to be much less time and work involved in the production and finishing of machine made cutlery,

the unions attempted to maintain the same rates as they earned on hand forged goods. The Times concluded that the only solution was "a greater resort to machinery, for the purpose both of securing more freedom and overcoming the restriction on labour difficulty... every fresh trouble that arises is regarded as offering a further incentive to the invention or the adoption of machines which can be worked by more or less unskilled labour."[121]

However, the issue was considerably more complicated and circular than this view would suggest. For whilst unions may occasionally, at certain boom periods and in certain branches of the trade, have been sufficiently powerful to stop the introduction of machinery, they were generally far too weak and ineffective to successfully implement such a policy. Rather, successful resistance was largely dependent upon the prior existence of a labour shortage in a branch of the trade, which in turn was normally the result of the displacement of labour which accompanied an earlier implementation of mechanized production. Labour saving devices reduced the skills and status of craftsmen who sometimes left the trade themselves, and often refused to apprentice their sons to it. Thus, the position of the skilled craftsman grew stronger when good trade brought general labour shortages, especially when Sheffield was still attempting to maintain a reputation based on the work of such artisans.

Overall however, manufacturers and their journals appear to have exaggerated and overreacted to the supposed power of unions as a factor in forcing them to adopt machinery. It is of course possible that this was a preconceived policy which provided an excuse and motive for their introduction of machines and 'common' production, which appeared worthier and less blatent contraventions of traditional values, than admitting that it was done for profit motives alone.

The machine forging of scissor blanks, introduced into Sheffield on a large scale by the 1890s, was publicised not so much as a profit guided manoeuvre, as much as a defensive action to ensure a regular supply, which would not be dependent on "the caprice of the workmen" whose nonchalant attitude to their work caused manufacturers to declare that "the world will not wait until

it pleases the scissor forgers of Sheffield to do their work."[122] Similarly, machine table blade grinding was said to have been given a great boost in 1913 by "the fear of trouble with the grinders."[123] Razor forgers were blamed for the difficulties encountered in introducing machinery to this trade in the 1890s, particularly in their refusal to "abate one jot from the statement price, although there might not be one quarter of the work to do".[124] The issue was as clear to The Ironmonger as it was to The Times: machinery was introduced mainly because of the "many customs and rules of the trade unions, which have worked more harm to the hands they are professedly intended to benefit, than tyrannical and greedy employers, high tariffs and foreign competition combined. The genius who originally drafted the rule forbidding the artisan to take more than one apprentice, and him only if a son, displayed as much wise foresight as the poor Ludddites and other machinery wreckers."[125]

However, this opinion was vigorously denied by various trade unions, for example the razor forgers who claimed, with some justification, that men had left the trade as a result of the shortage of work which had accompanied the importation into Sheffield of German razor blanks, leaving insufficient men to cope with a sudden boom in demand.[126]

Labour shortages which did force manufacturers to consider a mechanized alternative were general rather than selective or skill orientated, as was plainly illustrated in the unusually busy periods of the turn of the century and 1911-13. The chronic labour shortages in these periods were not the result of deliberate trade union policy as much as the fall in demand for labour following the McKinley Tariff and the development of machine techniques which resulted in a surplus of labour competing for a declining amount of work, and the low pay and conditions associated with such circumstances. Thus, when trade improved, many cutlers deserted the industry for openings which arose in alternative Sheffield industries, most of which, by 1900, offered "better paid and more congenial employment."[127] than the cutlery trades. Whenever possible, young men left the industry, and sons were apprenticed elsewhere.[128] However, the resultant worsening labour shortages

necessitated the further use of machinery for the prompt execution of orders in the 1911-13 boom.[129] Some machines were introduced with the express intention of employing semi-skilled, preferably juvenile labour in the place of skilled adults. Of Peache's patent grinding machine it was stated that "a youth of average intelligence can feed machines which will grind 2,000 blades a day," [130] whilst another manufacturer installed machinery because it required "labour of only moderate skill...work that you could train any steady, attentive man taken straight from the street to do in a very brief period."[131]

Union resistance to mechanization was therefore still firmly linked with efforts to resist deskilling, but it is doubtful whether their power and practices were as instrumental as manufacturers sometimes suggested. Moreover, some trade unionists seemed increasingly aware that mechanized production could infact entail considerably better opportunities for workers than those endured by sweated, manual, domestic workers. Robert Holmshaw, in his report to the Mosely Industrial Commission in 1903, was aware that the extensive mechanization of American cutlery factories allowed greater productivity without commensurate effort on the part of the workers. Thus, "labour saving appliances and up-to-date machines are welcomed by the men because, whilst lightening the work, they do not mean the reduction of wages."[132] Machines brought better working conditions and more sophisticated management which cut out the time lost by the men in fetching and carrying work from the various workshops.[133] Similarly, the delegation of trade unionists which visited Solingen on 1907, whilst critical of the limited skills of the German cutlers, were impressed by the advantages and improvements which mechanization necessitated: "The workshops of Solingen and their methods of production are easier than those employed by the Sheffield cutler, and....they are able to produce more quickly by their methods than by ours."[134]

However,it would still be a mistake to exaggerate the extent of the transition to mechanized production, and an even greater mistake to generalize about it, and overestimate the extent to which changes were welcomed by masters and men. A variety of sources indicate the continued dominance of handicraft methods with

-in the trades. Foreign observers were particularly surprised by the survival of what they considered to be antiquated methods,[135] whilst The Ironmonger continued to be a constant critic of what it perceived to be the apathy and economic backwardness of the Sheffield cutlery trades. A typical criticism struck deep at the roots of the conservatism and love of tradition which made it difficult for manufacturers to adapt to new circumstances: "It is impossible for an outsider to come in contact with any considerable number of persons engaged in the production of cutlery and kindred goods in that city without noting the strong spirit of aversion to change which runs through it, and explains why knives and tools of today are pretty much the same design as those of twenty or more years ago. To make matters worse, the absence of change for so long a time, has created in many minds that fatal idea that ... no further improvement of any practical value is possible ...it is impossible to get any novel ideas... turned into practical account, inasmuch as the workmen, unless their daily bread depends upon it, cannot be induced to forge new patterns."[136] Even A.J.Hobson, a leading Sheffield manufacturer and exponent of the virtues and values of mechanization, still complained in 1907 that the issue was "a very difficult problem to solve; it will not be solved in five years, or in ten years or perhaps in twenty years for many branches."[137] Practical descriptions of the cutlery production processes also convey a picture of an industry with an essentially handicraft base, dependent upon craftsmen who possessed the necessary " aptitude, skill and delicacy of touch which are the outcome of nature and experience."[138]

The same sentiments were never far from the minds of the most renowned, prestigious cutlery houses, who loathed the compromise and loss of reputation involved in association with common products.[139] Most of the long standing prejudices concerning common goods had never been overcome. When the Canadian Manufacturers Association, on a visit to Sheffield, mocked the primitive techniques used in the cutlery trades, the response of the Sheffield Chamber of Commerce bristled with the traditional values and the continued confidence placed in them. The Chamber wondered "whether the critics had ever tried shaving themselves with a wholly machine

-made razor, or using a pocket-knife with stamped instead of hand-forged blades. If they had, they might not be so surprised at the retention of human skill and knowledge in preference to mere mechanism in the production of articles of such close personal utility ... they left the cutlery works of Sheffield with a fair supply of the real article... and it is hoped that they will learn to appreciate the value of quality."[140]

Moreover, it seems that there continued to be considerable sense in perpetuating Sheffield's production and equally her image as a producer of high quality cutlery. Foreign tariffs which mounted consistently throughout this period always excluded low value, common cutlery to a far greater extent than the high quality products which the domestic industry was incapable of producing.[141] Sheffield continued to be virtually the only manufacturer in the world of certain handmade specialities, such as shear steel carving forks, for which there was a good demand right up until the 1930s.[142] Many of the most successful Sheffield cutlery houses still maintained that their prosperity was the result of their continued allegiance to the high quality, largely handmade production, on which their reputation had been built.[143] 'Artistry' in production was emphasised by both masters and men as another facet of Sheffield's wares that helped to maintain her reputation and which could not be imitated by competitors. Mechanization, which stifled decorative and diverse patterns, could well put paid to this unique and respected aspect of the trade.[144]

A reputation , a standard of quality automatically associated with a trade mark, was believed by many Sheffield manufacturers to be all-important. This was the reason given by many for the ease with which machinery had been adopted in Germany, where there were no traditions of high quality, 'one off' production by old, small-scale manufacturers. "The Germans, as a rule, always appear to aim at 'big business', and lay themselves out to produce economically any pattern which promises to sell in large quantities. They have no use for oddments and the wasteful attention to orders for '¼ dozens of no.413', the curse of many a Sheffield manufacturer."[145] It was believed that the Germans could afford to use large-scale component manufacturers and produce standard common cutlery because

they had no such traditions of and for quality: "The German's, coming from the cast metal, had a demand in quantities for simple patterns and they have made an improvement by stamping; if we had taken up stamping at an early stage we should have made a depreciation in our goods, and not so well have satisfied our customers."[146] This then, was firmly associated with the continued importance of market demands and expectations of the Sheffield cutlery trade. A huge range of good, specialised products was still expected by the consumer, and catered for by the large firms who continued to invent and patent ever more complicated, inessential products.[147] Moreover, many purchasers who could have been bulk buyers and consequently helped to create conditions favourable to mechanization - particularly the army and navy - where themselves often conservative adherents to old, obsolete, highly individualistic patterns, for which it was pointless to use machinery because "when an order is obtained, it means new dies, tools and so forth, which may never be needed again, as there is little continuity in government work."[148]

Thus, for reasons of both customary psychological preferences, but also for rational economic reasons concerning the nature of their market, many manufacturers found large-scale mechanization and the production of 'long runs' of goods unfeasible. A scissor stamping machine, for example, would need to make 8 to 900 dozen pairs of the same scissors in order to work economically, but this could be two years supply of a typical Sheffield pattern, which would chronically overstock the firm.[149] Thus the productivity and economy of the machine would be seriously hindered by the constant need to change dies and make adjustments to the machine.[150] Manufacturers therefore, continued to subscribe to the old compromise solution of inventing their own specialist machinery, suited to their own particular production and often jealously guarded as a trade secret.[151]

ii) Raw Materials

Although the period after 1890 witnessed significant advances in the development and application of the raw materials used in the cutlery trades, these received a predictably cautious and suspic-

ious response from both manufacturers and men. The psychological link between, and attachment to 'the finest raw materials', 'hand craftsmanship' and commericial respectability remained as strong as ever.[152] The best known firms continued to publicise the fact that there was no difference in the standard of the steel used for their high and common quality cutlery, and that economies stemmed solely from the type of hafting material used: natural or imitation.[153] This, it was stressed by implication, was in sharp contrast to less reputable firms and foreign producers.[154]

A number of Sheffield steel firms continued to manufacture special requirement cutlery steels, produced in small quantities, and often to individual requirements.[155] The local interest in this subject is illustrated by the discussion held by the Sheffield Technical School Metallurgical Society in 1892, which debated "Which is the best material for table blades: crucible cast or shear steel?"[156] The use of commoner steel was not even countenanced. Moreover, the opinion still prevailed that to produce the finest cutlery, different specifications of steel were necessary for the various descriptions of cutlery. "Cutlery steel is treated in so many different ways, that it is simply impossible to get a steel suitable for all kinds of work. One man wants a steel to weld on to an iron tang. Another wants a soft steel, to punch, free from seams, and to harden well... one cutler wants a knife to carry a rough cutting edge; another requires a smooth cutting edge"[157]

Although it was recognised that price had become a major factor in determining the type of steel used, it was still unquestionably agreed that shear steel should be used whenever possible. William Wardley, representing the working forgers, epitomized the opinion of these craftsmen when he stated that the durability and quality of a shear steel knife made it a much better buy, in the long term, and "manufacturers should not go in for competition so keenly, so far as raw materials is concerned."[158] The link was explicit between the quality of steel, the ability of the craftsman, and the reputation of the firm: "whilst hand forging is in the interest of the steel and improves it, goffing deteriorates its quality... nineteen out of every twenty blades made under a goff hammer are made out of common raw material, manufacturers having more sense than to put their best qualities under the goff, because

of course, the results would be against them."[159] In the course of the discussion, some of the extremely antiquated production techniques of the most famous houses, and their belief in traditional practices to ensure the best results were plainly illustrated: some firms still kept their shear steel bars for six to eight months before rolling them, as this was said to ensure a better quality blade.[160]

The actual mode of production of the best quality steel had changed remarkably little from its earliest inception,[161] until the revolutionary developments of 1912-13 which disrupted virtually every possible traditional understanding and principle. Harry Brearley, working in Firth's steel laboratories, discovered a formula for the production of stain resistant steel, which although originally intended for rifle barrels, he realised had significant potential for cutlery production.[162] Samples of the new steel were worked into knives by two local cutlery firms, but both were unimpressed and dismissive.[163] One firm said that the steel was "unsuited for cutlery steel: it is too hard to work and is almost impossible to grind, and the polished surface is dirty and a bad colour."[164] Firth's reached a similar conclusion, believing that stainlessness was in any case, "not so great a virtue in cutlery, which of necessity must be cleaned after each use."[165] Brearley claimed that the first cutler asked to make up knives from the steel had replied "Bloody likely, it would be contrary to nature".[166] Its unpopularity with the cutlers stemmed from their inability to treat the steel like ordinary steels: it had to be goffed by machine, and would not react easily to ordinary hardening and tempering techniques; it clogged the surfaces of the grindstones and was confused with carbon steel in the production processes. Thus "neither the structure nor the compostion of the metal gave the results for which for generations the forgers and grinders manipulating the older shear and carbon steels had looked."[167] Impossibly demanding tests were set up for the knives of the new steel, and various rumours were spread which claimed that a cut from a stainless steel knife was highly poisonous and dangerous.[168] These prejudices, combined with dislocation caused by the First World War caused significant delays in the introduction of the new steel.

However, In July 1914 Brearley did manage to find a cutlery manager at Mosley's who was willing to attempt further tests. Although initially unsuccessful, because they refused the inventor's advice on how to treat the new steel, this firm did obtain good results and were praised by Brearley:" They looked well ahead; they did not expect too much of the steel; they realised that some improvements in appliances and skill in handling them were possible, and the excellent knives they produced justified their optimism".[169]

Further movements towards a more scientific and strictly technical approach to cutlery production at the end of this period were evidenced by developments in the scientific testing and analysis of the properties of various steels and the cutlery made from them, using such techniques as chemical analysis, heat and cooling curves and microscopes.[170] That such methods were gaining acceptance illustrate the steady departure from the traditional 'rule of thumb' techniques. Although alien to the world of cutlery producers, such developments were hard to ignore because they aimed at the manufacture of even more predictably high quality steel and cutlery, objectives which had always been so dear to the industry.

The extention of the application of artificial hafting materials met with far less concern or opposition . This was partly because their use had now been sanctioned by time, partly because ivory prices continued to soar,[171] but also because the handle did not effect the essential cutting quality of the cutlery. 1896 was the busiest year yet for xylonite and celluloid dealers,[172] and as prices escalated, new types of xylonite were produced which were near perfect imitations of natural materials.[173] By 1905 Sheffield cutlery houses were using more imitation hafting material than real,[174] but the sheer demand pushed up celluloid prices by 10 to 20% between 1906 and 1907.[175] By 1913, the price of natural materials was so exorbitant that they had been almost displaced by substitutes, with only the very finest and most expensive cutlery still incorporating real ivory pearl or horn.[176] However, the acceptance of this change by the industry would not have involved too great an abandonment of its principles. Natural materials had become quite simply too expensive, whilst imitation had become so fine that they were a perfectably acceptable choice which no longer involved the stigma of price cutting cheapness.

Throughout this period, raw materials and the way in which they were crafted, remained a focal area of concern and debate within the Sheffield trades. The developments in the availability and application of new materials and techniques were, in themselves, rarely devastatingly new or revolutionary departures. Nevertheless, attitudes within the industry to such changes were extremely cautious. Whilst there was a general awareness and appreciation of developments, they were only adopted when they had been sufficiently tried and tested and most importantly, when they were understood to be compatible with the commercial strategy and reputation which the industry had created, and was attempting to maintain for itself.

There was considerable sympathy and common ground between the older, more reputable manufacturers, who constituted 'the voice' of the trades, and the craftsmen who spoke for the skilled workers and craft unions. Both appreciated the unique quality and reputation of Shefield's craftsmen and steel, and the fame of a trademark built on these attributes. Unique quality and diversity of production marked Sheffield out from all its competitors. Undoubtedly this reliance upon customary practices to ensure traditional quality, immersed sections of the trade in a kind of psychological inertia and narrow-mindedness. This resulted in certain inabilities to appreciate changing conditions - demand in particular - which made them disparaging and condemnatory of those who 'stooped' to common production, and embarrassed when they themselves finally felt the need to participate in that market.

Overall however, it is possible to see their actions as moderately flexible within a given framework which was essentially commercially rational. Even for those that decided, either openly or clandestinely, to attempt some common production and reduce their prices, the ease with which this industry could be adapted to cost reductions through division of labour and subcontracting, made the purchase of machinery even less of an inevitability.

Thus, by 1914, the industry had moved a considerable way towards the acceptance and implementation of new raw materials and techniques. However, this was done by compromise and cautious adaption which meant that the touchstone of these trades - commercial respectability and a reputation for the finest goods -

remained intact, and continued to colour all new departures. The Sheffield industry thus managed to retain its prestigious and exceptional links with the past, which whilst suiting the temperament of its practitioners, also enabled it to continue to mark itself out from competitors, retaining a well-known niche and name of its own.

Footnotes

1. D.H.Aldcroft, 'The Entrepreneur and the British Economy 1870-1914', Economic History Review, XVII, 1964,p.133. For further discussion of this view, see D.H.Aldcroft, 'Retardation in Britain's Industrial Growth 1870-1913', in D.Aldcroft and H.W.Richardson (eds.), The British Economy 1870-1939, London, 1969; H.J.Habakkuk, American and British Technology in the Late 19th Century: the Search for Labour Saving Inventions, Cambridge, 1962; D.Landes, 'Technological Change and Developments in Western Europe, 1750-1914' in H.J.Habakkuk and M.Postan (eds.), The Cambridge Economic History of Europe, vol.IV, Cambridge, 1965; L.G.Sandberg, 'The Entrepreneur and Technical Change', in R.Floud and D.McCloskey (eds.), The Economic History of Britain, vol.II, London,1981; D.McCloskey and L.Sandberg, 'From Damnation to Redemption: Judgements of the Late Victorian Entrepreneur', Explorations in Economic History, XI, 1971.
2. See chapter1, p. 11.
3. S.Pollard, History, p.126.
4. Lloyd, p.375-9; 394-5; The Ironmonger 15.3.1880, vol.23, p.660.
5. P.C.Garlick, 'The Sheffield Cutlery Trades in the 18th and 19th Centuries', p.78.
6. S.I.,9.1.1858.
7. P.P.1888,XXVI, Factory Inspectors' Reports, c.5328, p.37; J.Himsworth, The Story of Cutlery, p.74.
8. S.Pollard, History, p.129.
9. Ibid.
10. Lloyd, pp.185-7.
11. Ibid., p.187; S.I., 24.5. 1884; 22.12.1884.
12. P.P.1865, J.E.White's Report, case 199 (p.43).
13. British Industrial Publishing Company, Industries of Sheffield: A Business Review, Birmingham, 1888, pp.32, 39, 43, 92.
14. C.K.Harley, 'Skilled Labour and the Choice of Technique in Edwardian Industry', Explorations in Economic History, XI, 1974.
15. The Ironmonger, 25.7.1885, vol.34, a letter from America concluded that although there was no longer any real demand for British cutlery in America, "There is a limited demand for certain high-grade, English goods, which are sold on their traditional reputation, and command a price which bears very little relation to the actual value of the goods as compared with corresponding American makes...

these fine goods however, will probably always continue to be sold, as there are people who want them without any regard to price".

16. N.Rosenberg, Perspectives on Technology, Cambridge, 1976, p.191; See also S.B.Saul, 'The Market and the Development of the Mechanical Engineering Industries in Britain 1860-1914', Economic History Review, XX, 1967; R.Samuel, 'The Workshop of the World', History Workshop Journal, III, 1977, p.55
17. English Illustrated Magazine, August, 1884, p.666.
18. Ibid, p.665.
19. The Iron Age, quoted in S.I. , 7.8.1880.
20. Pawson and Brailford's Illustrated Guide to Sheffield and Neibourhood, Sheffield, 1879, p.253.
21. P.P. 1865, XX, J.E.White's Report, case 199 (p.43); R.Samuel, 'The Workshop of the World', pp.51-2; Pawson and Brailford, 1879,p.253.
22. L.G.Sandberg, 'The Entrepreneur and Technological Change', p.101; N.Rosenberg, p.191.
23. N.Rosenberg, p.159. Even in 1946, The Ministry of Labour and National Service found that "mechanization has not produced a standardized machine technique. Each maker has devised machines suited to his particular products". Ministry of Labour and National Service, Industrial Conditions in the Cutlery Trades, Report by the Cutlery Council, H.M.S.O., London, 1947, p.4.
24. Pawson and Brailford, 1879, p.256; The Ironmonger, 22.1.1887, vol.37, p.124, a high quality knife needed 60-100 "handlings" and "it has not been found profitable by any machinery to reduce the number of these operations more than 10 or 20 per cent in this branch of the cutlery trade." The Implement and Machinery Review, 1.10.1898, p.23290, "The difficulty is in grinding, no machine having yet been introduced for successfully accomplishing that operation; it requires intelligence, and that cannot be put into a machine".
25. G.P. Jones and H. Townsend,'The Rise and Present Prospects of the Sheffield Cutlery Trades', International Cutler, vol. 3, Feb 1953.
26. P.P. 1886, XXI, R.C. on the Depression in Trade and Industry, 2nd Report, 1886, C.4715, S.Uttley, q.1143.
27. Ibid., q.1144; P.P.1889, XIII, S.C. on the Sweating System, 3rd Report, 1889, C.4715, S.Uttley, q.24844; P.P.1890, XV, S.C. on the Merchandise Marks Act(1887), 1890, C.7586, C.Hobson, q.1204.
28. For example, see R.W.Cavill, 'Personal Reminiscences of Cutlery Manufacture', typed manuscript, S.C.L., M.P.184L, when a steam hammer was installed in Sheffield

in the late 1850s, "the table blade forgers in the town, believing that their living was endangered by this new invention, organised a rattening gang to destroy the machine; however, Mr. Lawson (its owner) heard of their intention in time to summons the police and Yorkshire Dragoons. The gang was driven away suffering numerous casualties, and the machine was saved". See also P.P.1865, XX J.E.White's Report, p.2.

29. B.R.Dyson, A Glossary of Old Sheffield Trade Words, pp.24,28.
30. P.P.1889, XIII, S.C. on Sweating, H.F.Davis, q.25373; P.P.1829,XXXVI, R.C. on Labour, 2nd Report, 1892-94, C .9795, Wardley, q.13960.
31. P.P.1886, R.C. on the Depression, Uttley, q.1214.
32. P.P.1889, XIII, S.C. on Sweating, Uttley, qs.24443, 24447, 24861.
33. H.C.Baker and S.Mitchell, 'Some Factors affecting Technical Progress in the Cutlery Trades', Occupational Psychology, vol.34, 1960, pp.48-9,51.
34. See chapter 5, pp. 155-7.
35. S.I.,30.3.1876.
36. P.P.1886, XXI, R.C. on the Depression, Belk, q.2659.
37. Pawson and Brailford, 1879, p.258.
38. S.I.,28.5.1862.
39. The Ironmonger, 21.12.1889; 9.8.1890; 8.11.1890.
40. British Industrial Publishing Company, Industries of Sheffield, 1888, p.80.
41. Ibid., p.96.
42. Working Party Reports: Cutlery, p.8.
43. H.R.Singleton, A Chronology of Cutlery, Sheffield, 1973.
44. R.Floud, The British Machine Tool Industry 1850-1914, Cambridge, 1976, p.31.
45. S.I.,7.5.1874.
46. S.I.,23.1.1880.
47. S.I.,15.1.1880.
48. British Industrial Publishing Company, Industries of Sheffield, 1880, p.83.
49. Ibid., p.91.
50. Ibid., pp.35,91; Implement and Machinery Review, 1.7.1882, pp.4425-6.
51. J.B.Himsworth, The Story of Cutlery, p.144.
52. H.Tatton, Henry Tatton's Heeley Notebook: Sketches from Heeley's History, Sheffield, 1986, p.8.
53. S.I.,11.10.1873; The Ironmonger, 15.1.1887, vol.37, p.89.
54. S.I., 11.10. 1873.
55. S.I.,27.1.1877; 30.11.1877; 21.12.1877; 11.1.1878, the price of work on the new

'Shaw' knife, for example, which was selling well in America in the late 1870s, caused disputes which were so intense that they were taken to court.

56. S.I., 20.10.1873.
57. S.I., 21.11.1877.
58. S.I., 2.2.1884, the secretary of the Razor Grinders Union, for example, believed that low payment was the principle reason for the unpopularity of hollow grinding amongst the Sheffield grinders; the work was considerably better rewarded in Germany. Thus, whilst ever they were in a position of a skill which still commanded a good wage, there was no real incentive to learn further skills.
59. Ibid.
60. J.B.Himsworth, The Story of Cutlery, pp.56, 132, 136, shut knives, for example, ranged from "pen and pocket with one to eight blades, fleans and scribers, clasp, lock, budding, grafting and corn knives, sportsmen's and champagne knives...with round, square and nick joints, nail-nick, long nail-nick, notch hollow, steptang, catchsides, spear and castrating shape blades, iron and brass webbs, scale and bolster shadows, equal ends, round reverse and flat backs, "Wharncliffe" and "Congress" shapes".
61. P.P.1886, XXI, R.C. on the Depression, Belk, qs. 2839, 2841; S.I.,16.11.1872.
62. See chapter 7, pp. 229-243, 'Health'.
63. J.B.Himsworth, The Story of Cutlery, p.65.
64. S.I., 28.12.1872.
65. S.I., 14.3.1874; 7.3.1874.
66. S.I., 4.12.1875.
67. S.I., 25.11.1882.
68. S.I., 10.2.1883.
69. S.I., 24.4.1883.
70. Joseph Rodgers and Sons Ltd., Under Five Sovereigns, Sheffield, 1911, p.27; British Industrial Publishing Company, Industries of Sheffield, p.27; Christopher Johnson and Co., Patterns and Price Lists, 1873, S.C.L., M.D.2378.
71. S.I., 5.5.1879.
72. S.Pollard, History, p.129; J.B.Himsworth, The Story of Cutlery, p.73.
73. S.I., 5.5.1879
74. Pawson and Brailford, 1879, p.256.
75. British Industrial Publishing Company, Industries of Sheffield, p.27.
76. Joseph Rodgers, Under Five Sovereigns, pp.25-27.
77. S.I.,1885, Such a technique was that developed by C.Ibbotson, a well-known cutlery manager, whereby strips of ivory or pearl were soldered on to wooden or

white metal handles, making them 30 - 60% cheaper, but still the legitimate 'genuine' item, S.I. 21.7.1885.

78. P.P.1886, XXI, R.C. on the Depression, S.Uttley, q.1143; P.P.1890, XV, S.C.on the Merchandise Marks Act(1887), Hobson, q.1204; P.P.1892, XXXVI, R.C. on Labour, W.F.Wardley, 19244.
79. J.G.Timmins, p.194; K.C.Barraclough, 'The Production of Crucible Steel in Britain by the Cementation and Crucible Processes', Journal of the Historical Metals Society, vol.8,1874, p.106.
80. J.G.Timmins, p.209.
81. S.Pollard, Three Centuries of Sheffield Steel: The Story of a Family Business, Sheffield, Marsh Bros., 1954, p.42.
82. Ibid., pp.29-30, 42.
83. J.G.Timmins, p.234; The Ironmonger, 15.1.1887, vol.37, p.88, some Sheffield steel firms offered cheap steel, but their old customers were reported as being dissatisfied with its quality, preferring the original better quality steels.
84. J.G.Timmins, p.209.
85. Joseph Rodgers bought a water powered forge at Leppings Lane in 1890, moved to a tilt at Oughterbridge in 1894, and then to Middlewood forge in 1903. They also produced their own cast steel from 1894, and in 1907 bought the large Sheaf Island works from William Jackson and Co., Under Five Sovereigns, p.9.
86. Ibid., pp.9, 25.
87. G.Tweedale, Sheffield Steel and America: A Century of Commercial and Technological Interdependence, 1830-1930, Cambridge 1987, pp.32, 97. G.Tweedale, Giants of Sheffield Steel: The Men Who Made Sheffield the Steel Capital of the World, Sheffield 1986,pp.50-51; S.Pollard, Marsh Bros., p.33.
88. The Century's Progress: Yorkshire Industry and Commerce, London, 1893,p.124. A few other firms also combined the production of steel and cutlery, for example, Wingfield Rowbothams who acted as general merchants, cutlery merchants, blister, cast and shear steel makers, British Industrial Publishing Company, Industries of Sheffield, p.109.
89. C.Pagé,La Coutellerie, vol.VI, p.1482.
90. See chapter 3, pp. 83-90.
91. Reported in S.I., 10.11.1879.
92. The Ironmonger, 14.2.1880.
93. S.I., 10.11.1879, one manufacturer wrote that respectable cutlery houses "continue to use the same fine brands of steel as those by which their reputations were originally founded, and the care and skill used in manipulation were never so great as at present".

94. P.P.1886, XXI, R.C. on the Depression, S.Uttley, q.1143.
95. Ibid.; S.I. 23.7.1878.
96. S.I., 11.8.1894; 18.8.1894; 22.9.1894; The Ironmonger, 1.3.1887, vol.34, p.140.
97. S.I., 5.4.1902; 17.11.1902.
98. S.I., 5.4.1902.
99. S.I.,1.5.1913; 16.4.1913.
100. S.I.,1.5.1913; 22.7.1899; The Ironmonger, 15.3.1880, vol.23, p.660.
101. S.Pollard, History, p.102.
102. S.I., 12.1911, The first in a series of letters on the subject.
103. S.I., 15.10.1894; 3.8.1889; The Ironmonger, 1.10.1898, p.23290.
104. J.B.Himsworth, The Story of Cutlery, pp.90-92, 148.
105. Ibid., p.148.
106. P.P.1908, III, Departmental Committee on the Truck Acts, 1907, Cd.4444. A.J.Hobson, q.12478.
107. P.P.1911, XXII,Factory Inspectors' Report, cd. 5693, p.51, ibid., 1912, XXV, cd. 6239, p.62.
108. S.Pollard, History, p.204.
109. S.I., 11.2.1905.
110. R.Samuel, 'The Workshops of the World', p.14.
111. C.Wilson, 'Economy and Society in late Victorian Britain', Economic History Review, XVIII, 1965; S.B.Saul, The Myth of the Great Depression, London, 2nd. edition, 1986, pp.30-34;
112. See chapter 3.
113. Sheffield and Rotherham Up-To-Date, Sheffield, 1897, p.129: In discussing the production of George Butler's, it was stated that "not only is the finest grades of goods manufactured by them, but those for the millions are not overlooked". Of Needham Veall and Tyzack's production, it was stated that "preparation and manipulation are regulated by a scientific knowledge, combined with the highest order of workmanship", ibid, p.126. Christopher Johnson's informed their Indian customers in the early 1880s, that whilst they had sent samples which represented "the highest class of sportsman's knife,...our manufactures also include every description down to the commonest article which goes largely into your market", Christopher Johnson, Foreign Letter Book, 1879-1883, S.C.L.,M.D.2368.
114. P.P.1892, XXXVI, R.C. on Labour, W.F.Wardley, q.19628.
115. Sheffield: Cutlery Capital of the British Empire, Sheffield, 1919, p.20.
116. From the American Cutler, quoted in G.Tweedale, Sheffield Steel and America, p.128.

117. Cutlers' Company Records, Annual Report, Jan. 1912.
118. Ibid.
119. S.I., 18.8.1894; 24.9.1894.
120. The Times, 26.12.1901.
121. Ibid.
122. S.I., 13.9.1913; 7.2.1914.
124. S.I., 16.2.1897.
125. Quoted in S.I., 12.5.1890.
126. S.I., 6.5.1890.
127. S.I., 1.9.1900; 18.1.1896.
128. S.I., 1.9.1901.
129. S.I., 26.10.1912; 24.1.1913; 15.3.1913; P.P.1892, XXXVI, W.F.Wardley, qs.19244-5 19356; the Labour Gazette, Nov.1893, p.150; The Times, 23.6.1897.
130. S.I. 3.8.1889.
131. P.P.1910,VIII, R.C. on the Poor Laws and Relief of Distress, 1909, cd. 5066, A.J.Hobson, q.88405; S.I.,28.5.1910.
132. R.Holmshaw in the Mosely Industrial Commission, quoted in S.I., 18.4.1903.
133. Ibid.
134. The Metal Worker, vol.I, Nov.1907, p.233; vol.II, Nov.1908 p.24.
135. Chamber of Commerce Records, Annual Report, Feb.1906, S.C.L., L.D.1986/6.
136. The Ironmonger, quoted in S.I., 7.4.1900.
137. P.P.1908, III, Committee on the Truck Acts, A.J.Hobson, q.12434; P.P.1910, VIII, R.C.on the Poor Laws, A.J.Hobson, q.88379.
138. J.Pendleton, 'Industries of Sheffield: Fact and Romance', in Sheffield in 1902: A Survey of the City at the Beginning of the 20th Century, p.25, Sheffield, 1902; S.I.,13.2.1889.
139. Sheffield and Rotherham Up-To-Date, pp.123, 134.
140. Chamber of Commerce Records, Annual Report, Feb.1906, S.C.L., L.D.1986/6.
141. See chapter 3, pp. 80-3.
142. J.B. Himsworth, The Story of Cutlery, p.102.
143. Handicrafts that Survive: Souvenir of the Master Cutlership of Mr. A.J.Hobson, 1902-3, no publication details, 1903; in 1921, Joseph Rodgers and Co. still accounted for their success in terms of "old methods and old servants", The Metal Industry, vol.19, 1921, p.83.
144. J.B.Himsworth, The Story of Cutlery, pp.154, 92; P.P.1908, III, Committee on the Truck Acts, A.J.Hobson, q.12478; The Metal Worker, vol.I, Nov.1907, p.235.

145. The Metal Industry, 6.2.1920, p.105.

146. P.P.1910, VIII, R.C. on the Poor Laws, A.J.Hobson, q.88376; Handicrafts that Survive, p.38, "It is by reason of this diversity of tastes...and the consequent variety of patterns, that the making of pen and pocket knives remains to so great extent a handicraft which offers comparatively little opening for the introduction of machinery".

147. See for example, the patents of Wheatley Bros., and Needham, Veall and Tyzack, S.C.L., N.V.T.5 and 9.

148. S.I., 3.6.1905.

149. P.P.1910, VIII, R.C. on the Poor Laws, A.J.Hobson, q.88376.

150. Ibid.

151. Most of the large and important firms developed their own specialist machines. At Needham, Veall and Tyzack's "most of the machinery here is only known and used by themselves, being the invention of one of the late principals", Sheffield and Rotherham Up-To-Date, p.127.

152. Ibid., p.126.

153. Ibid., pp.122, 135, 138; At Needham, Veall and Tyzack's, it was stated that "the first and most essential factor in the production of reliable cutlery is, of course, the raw material, and in this connection, it may be stated that from the earliest period of its establishment and subsequent progress of this house, none but the very finest steel, specially hardened and tempered, by skilled craftsmen for the purpose for which each article is intended, has been used - a policy we are sure the firm has no intention of departing from", p.127.

154. The Metal worker, vol.II, no.23, Nov.1908, p.244. The Federated Metal Trades of G.B. sent a delegation to visit cutlery producers in Solingen, where they were impressed by the technical proficiency of the machinery, but scathing that so much poor quality steel was used.

155. Visits and Excursions at the Sheffield Meeting of the Iron and Steel Institute, Sept. 25th - 29th, 1905, London, 1905; Handicrafts that Survive, pp.14-19; Marsh Bros. Works Notebooks, 1910-11, S.C.L., M.232.

156. Jounal of the Sheffield Technical School Metallurgical Society, 1892, pp.161-176.

157. Ibid., 163.

158. Ibid., p.167.

159. Ibid., p.169, Wardley talked about forging steel in terms of an art form: goffing hammers "thugged" a blade, whilst skilled hand forging "kneaded it like clay".

160. Ibid., pp.166, 170-1.

161. The Times, 23.6.1897. D.Flather, 'Crucible Steel: Its Manufacture and Treatment', Proceedings of the Staffordshire Iron and Steel Institute, 1901-2.

162. H.Brearley, Knotted String: Autobiography of a Steel Maker, London, 1941, p.126; S.Pollard, History, p.225.

163. H.Brearley, Stainless Steel: The Story of its Discovery, reprinted from the Sheffield Daily Independent, 2.2.1924, pp.12-13.

164. G.Tweedale, Sheffield Steel and America, p.77.

165. Ibid.

166. Ibid.

167. J.B.Himsworth, The Story of Cutlery, pp.74-5.

168. Ibid.

169. H.Brearley, Stainless Steel, pp.14-15, 13.

170. The Ironmonger, 21.12.1901, pp.506-7; W.H.Hadfield, Cutlery, Stainless and Otherwise from a Scientific Point of View, Sheffield, 17.12.1919.

171. Ivory prices soared in the 1870s, because of a continued limited supply and increasing competition at sales from German and American buyers (S.I., 5.1.1889). Although prices fell in the early 1900s, they returned to their 1898 peak in 1905, (S.I.,5.8.1905) and continued to rise until 1914 (S.I., 31.7.1909; 29.4.1910; 26.4.1913).

172. S.I., 19.12.1898.

173. S.I., 3.9.1898.

174. S.I., 18.3.1905.

175. S.I., 13.4.1907.

176. Lloyd, p.54.

Chapter 3 Trade Patterns and Their Contemporary Evaluation

Opinions of both employers and workers concerning the decline in world trade and severe depressions of this period, differed widely with the circumstances: sometimes the problem was felt to rest with false marking, at other times with tariffs or excessive wage rates. Most attention and debate was directed towards short-term problems on the demand side. These were usually outside the direct realms of the trades themselves, and thus avoided structural or marketing faults within the industry - faults or problems which necessitated action by the industry. Although towards the end of the period there was discussion of the importance of mechanized production and advertising campaigns, such criticism often came from people outside the city and industry, whilst manufacturers who voiced and practised such novel ideas were often branded as 'unrespectable', traitors to the principles which had made Sheffield great.

This chapter is not an attempt to apply hindsight to judge or analyse 'entrepreneurial failure' in the field of exports, but endeavours to understand the reasoning and priorities of those involved in the industry. Why were they obsessed with seemingly peripheral and dated issues, yet unable to tackle even the idea of faults and problems within their own procedures and beliefs? There appear to be broadly two reasons for this: the acute sectionalism of the industry in terms of both products and markets, which in reducing the occasions of like experiences, inhibited the ability to think and act in terms of large-scale, common causes; and secondly and more importantly, the continued adherence to traditional values and practices - particularly the value of quality, which made it difficult to accept, let alone embrace, new ideas. There was considerable economic rationality in the policy of far reaching product differentation, specialization and quality production, which quite successfully insulated the firms who marketed such products, from the competition of mass-produced German and American goods. However, such a strategy necessarily limited horizons and made it difficult to branch out into a wider market, whilst inevitably also concent-

rating too much attention on demand conditions, rather than the factors within the firm which had brought about such a high degree of specialization.[1]

Trade Patterns and Levels[2]

The small amount of information available on the sales of cutlery to the domestic market, renders difficult any estimation of the relative importance of home and foreign demand to the Sheffield cutlery trades. Less attention was directed to domestic demand because this market was considerably more stable, easier to satisfy with a traditional high quality item, and more accessible to the personal sales techniques of the cutlery houses. Moreover, the domestic demand, although it accounted for approximately half the value of the U.K.'s cutlery sales in 1907,[3] was generally smaller than this. It assumed more importance as the overall values of foreign sales dropped, and in the years when this demand was particularly slack, as in 1899-1901. As it was the export market on which attention was focused, in which changes in demand and selling techniques were demanded, and in which greatest sales and profits could be achieved, emphasis will be placed on the supply of that market in this section.

Statistically, exports of cutlery have to be treated separately before and after 1898, as before this date they were incorporated with exports of hardware, whereas after 1898 they were treated independently. Before 1898, exports fluctuated remarkably widely. They peaked in the all-time boom year of 1872, when export sales reached £5,000,000, and again in 1882 and 1889 with exports of £4,100,000 and £3,180,000 (see graph 2). Troughs occured in 1879 and 1886 when only £300,000 and £280,000 of cutlery were exported, falling even lower to £180,000 in 1894, with little improvement on that situation by 1898.[4] Despite the amplitude of variation, the overall trend was towards a significant decline in the value of exports after the boom of 1872-4. This tendency was confirmed by manufacturers who gave evidence before the Royal Commission on the Depression in Trade and Industry of 1886.[5]

Cutlery exports, when classified independently, equalled only a quarter of the value of previously indistinct hardware and cutlery totals (see graph 3). From a low point of only £56,000 of exports in 1898, trade improved fairly steadily, apart from sharp lapses in 1906 and 1908, and then increased sharply to reach £880,000 in 1912.

In the first part of this period, the most important market for cutlery was America, but American demand was particularly prone to sharp fluctuation (see tables 4 & 5). The peaks in exports to this market came in 1872 (£350.000) and 1882 (£250,000), whilst troughs were in 1876 (£125,000), and 1885 (£150,000). Also vitally important, but similarly unstable, was the Australian demand for hardware and cutlery (see table 5). Next in importance came the S. American and Indian markets, which imported between £250,000 and £450,000 of cutlery and tools from the U.K. annually. In the early 1870s, Germany too had been a large importer of British cutlery, but as her own production increased, her imports declined accordingly. Finally Canada, Russia, Holland, France and British South Africa (see graph 4) were all quite large importers. However, in all the above mentioned markets, with the exceptions of British India and Australia, the value of cutlery and hardware exported from Britain declined considerably from its peak of the early 1870s. Similarly, virtually all markets experienced peaks and troughs of demand within a year of each other: peaks in 1872-3, 1880-2, and 1888-9; troughs in 1878-9 and 1885-6.[6]

In the second part of this period, Australia was, by a significant margin, Sheffield's best market for cutlery, although as in the earlier period, its annual imports continued to fluctuate enormously: between £110,000 and £170,000. Australian demand peaked in the same years as general demand for cutlery peaked (see graphs 4 & 11), in 1891, 1896, 1900, 1907, and 1912. Its troughs were similarly experienced when cutlery exports generally slumped: in 1894, 1898, 1904, and 1908. America by this period, had ceased to be a top ranking importer of Sheffield's cutlery, and by 1912, was importing a lesser value than Canada, S.America, British India, S.Africa or Germany (see

graphs 4 & 8). Canada and S.America were, by the end of this period, very lucrative markets, importing between £55,000 and £120,000 of cutlery annually (see graphs 4 & 9), as were British S.Africa and India. Germany imported a stable, but small amount of cutlery until 1909, after which time her imports increased suddenly, to reach £65,000 by 1912. France, Holland and Russia all imported under £10,000 of cutlery a year from the U.K. (see graph 4).

Imports of cutlery into the U.K. rose sharply between 1903 and 1907, from £30,000 to £150,000, (see graph 7), but after this date remained very stable.

Seasonal Trends in Trade

Seasonal trends, although they could be disrupted and completely altered by cyclical booms and slumps, remained an important, and fairly accurately predictable feature of the cutlery trades, as they had been for as long as anyone could remember. This seasonality, combined with the inconsistency of demand from one year to the next, was a significant factor in dissuading manufacturers from adopting mechanized, factory production.

Trade in January was usually quite poor, unless the orders from the previous Christmas had been so large that trade was carried over into the New Year, or unless there was a general upturn in trade which caused retailers to buy in stocks. However, both these circumstances became gradually rarer as the Christmas season became better organized and began earlier; and as changes in fashion became more pronounced, thus making retailers less willing to build up stocks of what could very quickly become outmoded designs. Letter orders would begin to arrive in January and travellers would normally start their journeys at the end of this month. Trade was sometimes hampered however, by severe weather conditions, which made the transport-ation of goods difficult, and discouraged people from shopping.

The second quarter of the year was normally busier than the first, as trade picked up, until the lull which occurred between the summer and winter seasons, in May and June. In anticipation

of the breaks, work would increase markedly before the Easter and Whitsuntide holidays, the lengths of which would depend on the state of trade. In busy periods, holidays would be reduced to a minimum and summer and winter stock taking would be similarly shortened, although the men would compensate by taking unofficial breaks, particularly when the weather was fine. When trade was slack, manufacturers would take advantage of the breaks to close their works for as long a period as possible, and use up stocks. Summer holidays, until the early 1900s were taken over a long period, as the policy of shutting down the works whilst all employees took their vacations at the same time, did not become general practice until after 1905. Before this, holidays would drag on indefinitely, extended in an impromptu fashion, when trade and the weather were good. It was widely acknowledged that throughout most of this period, the men did not really settle down to their work again, until after the break for the Doncaster Race meeting of early September. There continued to be a traditional observance of all time-honoured festivals, which were slow to die out. These included the normal breaks for Christmas, Easter and Whitsuntide, but also half a days holiday on Shrove Tuesday and the same on traditional, although no longer significant quarter rent days.[7]

When trade was reasonable, no time of the year in the cutlery trades was ever completely slack, largely because of the huge variety of markets which were served. From March, for example, Indian and Chinese demand fell off, as their hot weather season approached, but orders increased from British and continental holiday resorts, and from the liner companies. Similarly, just as the important American demand fluctuated widely from year to year, so it fluctuated throughout the year: business generally peaked in the quarter which ended in September, whilst the troughs, although harder to predict, usually came in the quarter which ended in March (see graph 6). The amplitude of variation in this market was greatest in the early 1870s when the annual demand was at its highest: some quarter periods would see exports of £80 - 90,000, whilst in others American imports would reach only £20 - 30,000. These variations declined markedly as

the total value of cutlery exports from Sheffield to America fell.

The industry was normally slack in September, but picked up in October, as the Christmas season began in earnest. In the earlier part of this period, the Christmas season still began very late, often as late as the end of November, making work intense in the month before Christmas. However, the traditional exertion of 'calf', 'cow' and 'bull' weeks, (being the last three weeks of mounting and excessive exertion before Christmas) was already outmoded at the beginning of this period, as factory legislation in particular, put paid to such ritualised overwork.[8] Inproved and speedier communications, increased factory production and rapidly changing styles, were all stimuli which necessitated an earlier start to the Christmas season, as orders were placed earlier, until what had at one time been the busiest weeks of the year, often became the slackest ones as orders were completed and dispatched for sale well before Christmas. November and December were virtually always the busiest months of the year: a good Christmas season could dramatically improve the trade levels of an otherwise slack year. Christmas holidays, like all other holidays, were dependent on the state of trade, and could be extended from a week to a month.

The Attitudes of the Industry Towards its World Trade

In the earlier part of this period, foreign competition was not seen, or at any rate admitted , to be a serious problem. In 1885, whilst the Master Cutler recognised the increasing German competition (facilitated as he understood it, by the longer hours, greater frugality and lower wages of German cutlers) in neutral markets, this was not seen as any great threat: Sheffield was confidently believed to be able to hold its own.[9] Interestingly, it was the smaller and less prestigious houses who at this stage were most ready to acknowledge the intensity of foreign competition with its successful use of mechanized forms of production.[10] In the home market, foreign competition was never likely to assume large proportions, mainly because of the distictive style of Engish cutlery.[11] By the 1890s severe

competition in neutral markets was more readily acknowledged. Many manufacturers realized that they had been "too apt to sneer at our German competitors",[12] as they, and the Americans turned out increasing quantities of cheap, stylish, well-finished and packaged cutlery. However, German competition declined sharply after the 1890s, as their prices increased. Sheffielders generally were unwilling to discuss foreign competition without dismissing the issue in terms of the value and applicability of cheap mechanized production - a subject on which many, at least in public, still expressed firmly antipathetic views.[13] It was normally left to outsiders to raise the issue.[14] Many producers continued to adhere to the policy of maximum possible product differentiation, "designed to exploit the marginal differences in quality, and by creating the impression that the differences were greater than they were in reality, many British firms were able to serve a degree of oligopoly power."[15] They relied upon the ingrained preferences of some consumers for products which possessed the actual and social value of 'craftsmanship'. Such producers were shielded from and felt to be less threatened by foreign production of cheaper mass produced items. Even when firms did produce cheaper items, they still attempted to give them the market advantage of their trade mark and that of 'Sheffield'.[16]

Throughout this period, whenever foreign competition was discussed, it was rarely dissociated from the issues of tariffs and the fraudulent use of Sheffield trade marks, which therefore phrased the problem in traditional terms of quality and reputation, whilst also removing the onus of action from Sheffield's manufacturers. Both tariffs and false marking were seen by the Sheffield industry as unjust changes to the old rules of the game, which in shutting out or imitating Sheffield goods, merely acknowledged their superiority and the impossibility of their being matched under fair and normal trading conditions.[17] Foreign competition was therefore, often defused as an issue which reflected American and German trading ability, or the nature of market demands. Moreover, once seen in these terms, little could be done apart from bemoaning the injustice of politicians and the commercial dishonesty of some traders: nothing more

searching or introspective was felt to be necessary. To some extent, such attitudes reflected the inability, or at least unwillingness of Sheffield manufacturers to come to terms with the fact that the market for expensive, quality goods was no longer as buoyant as it had been, and that many consumers now wanted a cheaper item which competitors were now ready to supply. Their inertia could also have been a reflection of the practical difficulties involved in attempts to switch from specialized to more general, common production.

Tariffs had important consequences in terms of both long and short term trade flows. A huge increase in demand would take place immediately before a hostile tariff, as retailers stocked up with goods whilst the price remained low; but this would be followed by a commensurate fall in exports until retailers were forced to selectively restock, albeit at a far reduced level.

Most significant was the American Mckinley Tariff of 1890, which replaced ad valorem duties with much higher specific ones of between 100 and 200%. As with virtually every tariff of this period, it excluded cheap and medium quality cutlery which the now protected domestic industry could produce, but was far more lenient on the higher quality, specialized cutlery which its own producers could not attempt to manufacture.[18] The purpose of the act was recognised to be "to crush out as far as possible all importation",[19] and indeed, the boom that preceded the act was never repeated, as importation of all but the finest and most specialized items ceased.[20] Thus, Sheffield cutlery was believed to be beaten not on its own merits, but shut out without a chance,[21] a fact particularly galling to firms which had made considerable efforts to research a market, and manufacture accordingly.[22] Sheffield manufacturers, through the Chamber of Commerce, paid considerable attention to the details of new tariffs, and went to much, though usually unsuccessful, trouble to have them revised.[23]

Problems were not, however, limited to the actual closing of a formerly lucrative market: the anticipation of a change would also dislocate trade. Exports to Canada slumped before the reduction of the tariff in 1898, whilst the expectations of a

significant reduction in the Mc'kinley tariff, although unfounded, also dislocated trade. Moreover, growing uncertainty, as tariff barriers were erected all over the world,[24] created increasingly severe bouts of panic and despondency amongst manufacturers,[25] and despair that even those markets which remained open were often obstructed by biased customs officials.[26] However, whilst high quality cutlery was generally exempted from such duties, it was further useful valid ammunition to those manufacturers and men who regarded such goods as the only type that Sheffield should be manufacturing anyway. A correspondent in the Sheffield Independent, realising that the proposed French tariff of 1881 would wipe out Sheffield's exports of cheap cutlery, still felt that "it would be no great evil, as Sheffield would then have a chance of regaining her name for turning out cutlery that would stand the test of any inspection, and for which the consumer abroad would be glad to pay well".[27]

The practical results of the debate on tariffs were, however, minimal. They produced a limited impetus to find and exploit some fresh markets (see forward), but more often the result was political debate. This, although heated, detracted attention from the internal problems of the Sheffield trades, and was never about to result in the implementation of any practical policy.

The Free Trade versus Protection debate was the crucial trade issue affecting manufacturers at two stages in this period: in the late 1870s and 1880s and the early 1900s, the same periods, broadly, in which the debate was a central national issue. In the 1870s, this was sparked off by the discourse between the local Liberal M.P., A.J.Mundella, and steel maker Frederick Brittain,[28] but it seems that most cutlery manufacturers and workers remained firm adherents to Free Trade principles. Charles Belk, a former Master Cutler and a Conservative, believed that Protection, in increasing the costs of imported commodities, would increase the price of British exports, and remained commercially, as well as morally wrong, as well as politically inexpedient.[29] Free Trade was "an ever present help in prosperity, our sheet anchor in times of deep depression".[30] Other cutlery manufacturers were similarly fearful that British

protection would simply lead to more retaliatory duties which, in increasing the costs of imported raw materials, particularly Swedish bar iron and hafting materials, would cripple the cutlery trades.[31]

When the question of tariffs reemerged to occupy the centre of the trade debate again in the 1900s the cutlery industry remained a supporter of Free Trade principles. A.J.Hobson, Sheffield's most prominent cutlery manufacturer, was also the city's leading exponent of Free Trade, and although a staunch Unionist, defended it on Liberal platforms,[32] and in the local and national Chambers of Commerce.[33] He, like the influential local Liberal Free Trade pamphleteer of the period, Frederick Callis, continued to believe that the cutlery trades were too dependent on imported raw materials to risk the imposition of retaliatory duties.[34] The trade union leadership expressed similar convictions,[35] but such political and moral commit ments were not condusive to the re-evaluation of Sheffield's international competitiveness.

Similarly outraged, but vague and unconstructive in practical terms, were the attitudes of the Sheffield trades to fraudulent marking of cutlery, which although a relatively minor and peripheral problem, was blown up out of all proportion because of its association with traditional values of quality, commercial honesty, and a trading reputation.

The main practices involved in false marking were the stamping of cutlery with the names of reputable houses, or the name 'Sheffield' by dishonest traders in Sheffield or abroad; the stamping of poor quality blades with the false indications of quality, such as 'warranted shear steel', or 'cast Steel' on Bessemer or pig iron blades; and the marking of machine made goods as 'hand made'. Originally, it was believed that these were practices only stooped to by German competitors, but in the 1880s a storm arose, as the extent of the frauds within Sheffield became known.

Trade and merchandise marks had, since the beginnings of the cutlery trades in Sheffield, been crucial in the establishment of reputations and their identification with quality; their supervision had become a vital feature of the work of the Cutlers'

Company.[36] After 1801, trade marks were explicitly recognised as the property of their owner,[37] and with the increase in trade with non-English speaking lands, became an ever more important indicator of quality.[38] Thus they "had been employed from the dawn of the industry as the guarentor of quality and the proof of authorship...to the consumer it has become the main evidence of quality, the criterion on which he must place implicit reliance, since only technical expertness could enable him to distinguish one grade from another".[39] Moreover, the very name 'Sheffield' had become simiarly associated with high quality products, and was seen by many manufacturers and most men, as a collective asset, the protection of which should be communal and crucial.

As early as 1870, sections of the manufacturing community were taking an interest in, and steps to prevent the sale of German goods with 'pirated' Sheffield trade marks, and the Chamber of Commerce played an important role in the framing of the 1872 Customs Consolidation Act.[40] The status of the Cutlers' Company in this regard, was elevated considerable in 1875, when it was made the official trade mark registration authority for Hallamshire, a level of autonomy afforded to no other centre.[41] Furthermore, in 1883, its trade mark jurisdiction was extended to cover other items of iron or steel, with or without a cutting edge.[42] Such authority helped these official institutions of the trades to reinforce their status, moral and practical, as symbols and upholders of all that was commercially reputable and honourable, whilst generally increasing the attention given to the issue of trade marking.

Thus, the revelations that Sheffield manufacturers, and moreover, formerly esteemed members of the same Cutlers' Company, were participating in commercially dishonest practices, and trading away Sheffield's communal reputation for their own profit, were all the more shocking. The whole issue clearly illustrates the split that was developing between those manufacturers and men, broadly classified by contemporaries as 'respectable' producers, who continued to defend and act according to traditional commercial values and morality, particularly in their concern for the value of a trading reputation based on the sale

of a consistently fine, specialized product; and those who, although sometimes wealthy and notable manufacturers, were ready and able to disregard such traditional specialization, in favour of more 'modern' ideas on how to sell, and make profits. To the former, Sheffield could only rely on high quality specialites which were still her monopoly, and for this, a reputation and trade mark were vital. The latter however, were anxious to attempt to use their old reputations and that of Sheffield, to assist their efforts to sell a wider range of products to broader markets. Either way, it seems unlikely that fraudulent marking had nearly as significant an effect (potentially or actually) on export levels, as the Sheffield debate implied. For, whilst a commercial reputation was still, no doubt, very important, its protection had to be linked to efforts to sell the name, to advertising, research and marketing generally, all of which were overshadowed and neglected, as the false marking per se, dominated the whole scope of the debate. Many manufacturers, and even more trade unionists, seemed to believe that once fraudulent marking was stamped out, and Sheffield's name reassociated with commercial honesty and the finest goods, nothing more would need to be done, and orders would once more flood into the city.

Attention was drawn to frauds within Sheffield by the trade unions and the S.F.T.C. as early as the 1860s.[43] In the 1880s the S.F.T.C. launched a campaign against the use by Sheffield firms of falsely marked, low grade steels in cutlery, reporting its findings to the Cutlers' Company, and concluding that such practices would soon make Sheffield's mark "a misnomer".[44] Manufacturers had been aware, since at least the 1870s, that some of their number had been importing cheap machine made German goods, but stamping and reselling them with their own mark, thus enabling such a manufacturer to "undersell such of his rivals as conducted their business in an upright manner, and to realize a large, though dishonourable profit".[45]

However, perhaps because of the culpability of some of its members, the Cutlers' Company would do nothing about the allegations. It replied, with some justification, that the men were using the issue as yet another line in their attack on and

resistance to mechanized production.[46] Because of the threats it was believed to represent to the livelihood and status of their craftsmen, the issue of fraudulent quality marks by some Sheffield firms, became the focal concern of the trade unions in the 1880s. For some reputable firms too, these frauds, along with the illegal use of their trade marks by 'unrespectable' competitors, were central trading concerns. To these men and manufacturers, the maintenance of commercial and public respect for and faith in Sheffield's products was perceived as vital, and the whole fraudulent marks scandal was used as a kind of advertising campaign to reaffirm public knowledge of and taste for Sheffield's uniquely high quality cutlery.[47]

For others however, this issue was side-stepped, as they found it more comfortable to focus on the fraudulent practices of foreign traders. This was the policy adopted by the Cutlers' Company, which insisted that it had no authority to stop domestic contraventions of quality marks.[48] But manufacturers and men <u>did</u> expect it to remedy the abuses, partly because it had previously boasted its powers so widely, and partly because of what were perceived to be its traditional guild-like regulatory powers: the folklorish, vague "ancient practices" that were so often evoked.[44] Its inactivity was believed by many to be proof of the Company's loss or abandonment of its respectable status, largely through the entry of too many "middle men and traders",[50] instead of, as previously, limiting its membership to bona fide manufacturers. Thus in the words of one critic, "the Cutlers' Company have been more in favour of encouraging [false marking], because the Cutlers' Company was composed of the very people which were doing it".[51]

To a national audience, the Company attempted desparately to play down the whole scandal which, it was claimed, contained its own cure:"a maker who attaches his name to rubbish is certain soon to reap his reward and to drive the trade into the hands of those who try to build a reputation by supplying honest work; and if he fails to attach his name, he indirectly produces the same result, by driving the consumer gradually to take only those marks that are well-known as being indications of good quality".[52] Attention

was firmly focussed on frauds by foreign manufacturers, and the patient and long standing efforts of the Cutlers' Company to combat these.[53] The practice of such frauds amongst Sheffield manufacturers was said to be very rare, and was dismissed with moral outrage. It was "simply suicidal and analagous to the injury done by a man to his nearest friend, and from every possible point of view to be the worst and most to be depreciated kind of marking".[54] In fact, the Company freely admitted that they were attempting to draw a veil over the problem, as its very discussion, and the lack of confidence that it would inspire would further harm Sheffield's trading reputation.[55]

However, the trade unions, some manufacturers and the local Liberal press, in the form of allegations made in the Sheffield Independent,[56] made sure that the issue was explored, and kept at the forefront of debate locally and even nationally.[57] Discontent was orchestrated at large meetings fronted by prominent trade unionists: They directed their anger at the hypocrites in the Cutlers' Company who blamed foreign competition for the trade depression and for the losses of jobs and earnings, when their own dishonesty and search for illegal profit were the real cause. The Company was helping to rob Sheffield of its hard won reputtation; it was no longer the "custodian of the fair name of Sheffield".[58] Again and again, the change in commercial morality was put down to the changing character of the manufacturers. "In past times, Sheffield took pride in turning out good articles. They were content with less profits than manufacturers of the present day. Under any circumstances they used to pride themselves on having a good name, and when they died..if they did not have a few thousands to give to their children, they seemed to take special care that they left an unblemished reputation. (Cheers). But of late a change had come, and we had in our midst unscrupulous manufacturers and merchants who were not unwilling to damage our good name in order to make a fortune for themselves".[59]

The S.F.T.C. succeeded in forcing the creation of a Town Council committee to look into the issue, but they were indignant that the Board of Trade considered the problem too local and specialized to warrant a Royal Commission.[60] The local committee,

whilst it minimised them, still found the allegation which had been made in the Sheffield Independent, to be largely accurate, but the Town Council still rejected its report, for political reasons.[61] The S.F.T.C. was furious, and pointed out, as it had always done, the partiality of many manufacturers who were implicated in the scandal, and who were also members of, and protected by powerful local institutions: "if the Cutlers' Company ...had failed to obtain evidence to prove statements admitted from their own ranks, it was scarely to be expected that the Council would meet with full satisfaction".[62]

As the scandal became increasingly politicized, the Sheffield Telegraph supported the Cutlers' Company and local Conservative interests, whilst the Sheffield Independent continued to back the Liberal cause, the S.F.T.C., and 'respectable' manufacturers. The debate became another forum for discussion of the Free Trade versus Protection argument. Typically, a leader from the Sheffield Independent of 13.2 1886, announced that the revelations should be received "with indignation by those working men who loudly acclaimed that Free Trade is the root of the scantiness of their work, now find that the chief advocates of import duties are the very men who are misusing the manufactures of foreigners to defame Sheffield's good name, to rob her sons of employment, and to strike a mortal blow to her future prosperity. Those who rail loudest at the competition of foreign manufacturers are themselves the largest buyers of them". The Chamber of Commerce was accused of "fast constituting itself into a small protectionist coterie, making itself a refuge for all sorts of exploded economic heresies and imitating the example of Nero, who fiddled whilst Rome burned". The local significance and politicization of the issue is also illustrated by its domination of the municipal elections of November 1886: the landslide Liberal victories indicate the allegiances of most Sheffielders.[63]

The Cutlers' Company railed at the unions, citing their uncooperativeness as the problem which had forced many manufacturers to buy cheap German goods.[64] However, false marking was treated by many as a sufficient reason in itself for the depression and the shortage of work then being experienced.[65] It was an easy

concept to understand and apply, accordant with time-honoured notions and understandings. There was said to be "no wonder that our colonies are buying inferior but honest goods from other countries to our loss...Bad trade, as we all know, is the result of want of confidence in each other".[66]

As so often happened at difficult periods in these trades, 'the past' with its honesty and fairness was glorified by many employers and men as a blissful period, in sharp contrast to the immorality and imminent collapse of the present.[67] W.Nixon typified this view: "In those days, we had good steel and other materials to make up into knives. Masters were content to give fair wages and be satisfied with reasonable profits; but in these 'fast days' when men want to make as much money in five years as their fathers did in a life time, other means have been found to obtain that object".[68]

Sheffield's cutlery manufacturers were clearly divided on this issue, but there was no hard and fast pattern to the divide, such as old-established firms versus new firms, or large versus small. Both sides included wealthy and notable producers, it being freely acknowledged that a number of "big knobs" were involved in fraudulent practice.[69] Evidently some manufacturers wanted to use the celebrated trade marks that they and Sheffield had earned, in order to sell their lower quality goods as well. This was the aspect that particularly enraged the trade union officials: a firm could build up a market and reputation for its goods and trade mark, based upon a high quality, hand forged item, but once orders began to mount up, a cheaper, poorer item could be substituted but the trade mark retained, and the public thus deceived.[70] The Cutlers' Company however, continued to concentrate on the role of <u>foreign</u> fraudulent marking. Infact the disagreement between the two parties became so intense that two deputations had to be sent to the Board of Trade in February 1887, one representing the Cutlers' Company and the Chamber of Commerce, the other representing the working men. The former demanded legislation and an inquiry, the latter a more far reaching Royal Commission.[71] In typically parochial and insular fashion, because the problem was so vitally important to them, both sides were

disappointed when their grievances were left to be satisified by the more general and widely applicable 1887 Merchandise Marks Act.[72] Lord Stanley, the President of the Board of Trade, was dismissive: in his opinion their complaints could be easily incorporated into the new Act, the formulation of which was still underway. Their grievances would not, and could not be treated as a unique case: "We have to use language which will be applicable not to one section of the trade, but to the trade of the community at large".[73] Nevertheless, members of the Cutlers' Company, the Chamber of Commerce and the S.F.T.C., gave detailed evidence on the practicalites and problems of merchandise marking before the Select Committees on the Merchandise Marks Acts of 1887[74] and 1890,[75] and in so far as they affected Sheffield, these Acts were largely based on the evidence of Sheffield's witnesses. The 1890 Act prohibited all goods with a misleading mark from entry into Britain,[76] and if no country of manufacture was stated on the goods, it was taken to be that of the port from which they were sent.[77]

After this pronounced friction, there ensued a long period of considerable harmony and joint action between the S.F.T.C. and the employers' organizations. This was partly the result of the numerous problems which were found to exist with the new (as with all previous) legislation, which meant that it was necessary to hold talks and plan alternative strategies, in an attempt to improve it. To a greater extent however, this cooperation was the result of the continued prominence that the S.F.T.C. gave to the issue, combined with its strong and enduring commitment to the procedures of conciliation and arbitration, for which purpose the common ground provided by trade marking was a perfect trial ground.[78] The S.F.T.C. was a leading exponent of the need for boards of conciliation in each centre of industry, a major function of which would be to keep a watchful eye on the implementation of merchandise mark legislation. The Chamber of Commerce replied quite positively to this, and a number of joint meetings were held in 1887-8. However, it was always the men's delegates who made the most practicable and constructive criticisms, and the suggestions which formed the resolutions finally adopted and

forwarded to the Board of Trade. These resolutions were, moreover, along very much the same lines as those which the government would finally adopt many years later. They placed particular emphasis upon the enforcement of the Act abroad and in the colonies, on the need to stamp all goods with a place of origin or a national mark, and most important to the effectiveness of the legislation,that "these prosecutions, conducted as they are, on behalf of the community, should be undertaken at the expense of the government, by a public officer appointed for that purpose".[79] Pressure was continually exerted on the government to hand over the power of prosecution to the Public Prosecutor, but to no avail.[80] Instead the Cutlers' Company and Chamber of Commerce cooperated in paying for and undertaking the expensive prosecutions of foreign firms who infringed trade mark regulations,[81] supplementing the numerous actions undertaken by various prestigious Sheffield firms against manufacturers in Sheffield and abroad.[82]

Despite all its frequently cited faults, the legislation was still hailed as a major event in Sheffield, and central to the prosperity of the trades. It was believed to have a strong deterrent effect , reaffirmed by the stoppage by customs officials, of 110,000 packages within the first six months of its operation.[83] The good trade of the early 1890s, particularly in the scissor trade, which had suffered especially badly from the competition of fraudulently marked German scissors, was believed by many Sheffielders to be the result of recent legislation.[84]

Although considerable emphasis was placed by all parties on the importance of false marks to Sheffield's trade, the issue continued, until the end of this period, to be seen from conflicting perspectives. The Cutlers' Company and Chamber of Commerce persisted in giving far greater consideration to the use of Sheffield's trade marks by foreigners.[85] The trade unions however, continued to pursue the issue of false indications of quality which, as the use of machinery was perfected and extended, came increasingly to mean the stamping of machine made blades with marks implying manufacture by hand. To them, the problem was related to the very structure of the trades, whereby many large and respected firms could have their goods made 'out' by independent, and increasingly, poor calibre workmen, whose work was

nonetheless stamped with the firm's prestigious mark. Thus, although it caused deep divisions and arguments amongst the men,[86] the union leadership advocated the stamping of each blade not only with the mark of the merchant, but also the actual manufacturer of the blade, in order that the public would know exactly who had made it.

The manufacturers' associations however, pressed on with their own policies, and in 1899 the Cutlers' Company launched a fund for "the protection of the name of Sheffield abroad".[84] They appealed to the local public for donations with which to help to finance the costly prosecutions of foreign trades who used Sheffield marks. Vigorous appeals were made to local duty, pride and responsiblity, and large sums quickly flowed in, cutlery firms being amongst the most generous subscribers.[88] Working class organizations however, remained deeply sceptical: it was felt that Sheffield's manufacturers had encouraged the frauds in the first place when they had imported cheap German goods in the 1870s, and in many case still did,[89] and when they had failed to react to the allegations pressed upon them by the S.F.T.C. in the 1880s.[90] The doubts expressed in 1906 were the same as those voiced in the 1880s: many manufacturers could not be trusted to uphold Sheffield's trading reputation, "No one was doing more to hurt the good name of Sheffield than the Sheffield manufacturers" and "it was no wonder the Cutlers' Company did nothing, for the members were manufacturing goods as disreputable themselves. In fact, they were actually getting their supplies from the very men they were asked to prosecute".[91]

By the end of the period, false marking was once more the major issue that obsessed the Sheffield cutlery trades. Commenting in 1912, the Sheffield Independent stated that "the evil of false marking by competitors is now, as ever, one of the greatest stumbling blocks in [Sheffield's] commercial progress, a far more dangerous handicap for example, than hostile tariffs".[92] Whilst the Chamber of Commerce pressed their national association, which in turn pressed the government, unsuccessfully, to undertake and pay for proceedings under merchandise marks legislation,[93] it was the Cutlers' Company who this time established a "Sheffield

Defence Fund" in 1910. £10,000 was donated by local firms and individuals, a fact which was believed to indicate "a great advance in the public spirit of the people of Sheffield, and points to a further realization of the valuable trading asset which the name of our city undoubtedly is".[94] Although the Master Cutler who inaugurated the scheme was not a cutlery manufacturer,[95] its subscribers included a number of cutlery firms, as well as workmen's associations.[96] The money donated helped in the prosecution of firms as far afield as Germany, Egypt and Russia.[97]

However, the avowed interest of the fund was to watch over Sheffield's interests, and to prosecute "unscrupulous manufacturers or merchants who do not hesitate to make use upon foreign made goods, the name of 'Sheffield'."[98] This objective would have involved the prosecution of Company members, several of whom imported and stamped German goods. The Company was thus placed in an awkward and embarrasing position. Although in 1913 it sent out a circular to 230 Sheffield cutlery firms, warning them that to import German blades and mark them 'Sheffield made' would render them likely to prosecution under the Merchandise Marks Act,[99] it was once again the representatives of the men, particularly W.F.Wardley, who were consistently bringing this issue forward and forcing the Company to act.[100] The Company however, would do little more than clarify what constituted a fraud under the 1887 Act, and issue public warnings to that effect.[101] With regard to false indications of quality, the 'real' issue as far as the men were concerned, the Company would and could do little beyond restating the fact that "the only method of prosecution in such cases is for selling goods under false pretences, and...to establish a case of this sort, there must be produced some person or persons who have been misled by such false pretences to purchase the goods".[102]

The unions remained dissatisfied with this 'whitewashing' of the problem and chose to highlight the difficulties and frauds involved, by concentrating on the supply of falsely marked, poor quality goods to the government. During the Boer War and after, it was asserted, even by many manufacturers, that the low prices paid by the government for its contract work, made them unwilling

to compete for it, especially since the standard of goods required could not always be produced for the price that was being given.[103] The rumbling debate came to a head in 1900-1 when accusations of unpatriotism, as well as the making of excessive profits, unscrupulousness and dishonesty, were levelled at the men who sweated the cutlers and harmed the soldiers by selling goods which, although marked according to the standard stipulated in the government contract, were in reality poor quality rubbish.[104] The S.F.T.C.'s concern reached such a level that a delegation was sent to the Board of Trade to inform those responsible for government orders, of the frauds that were being committed and the consequent damage to the livelihood of the workers.[105]

The same allegations were made by the men who appeared before the 1908 Fair Wages Committee. The best firms would not touch government work, much of which was made from poor quality Bessemer steel.[106] The men continued to plead not only in the name of commercial morality and honour, but also for the "fair manufacturers who pay a good price for ordinary work", but who were "cut out of a contract because another emmployer is unscrupulous".[107]

The accusations reached a bitter climax when, in 1913, the razor forgers' union, led by its secretary, Henry Reaney, took the firm of Thomas Turner and Co. (whose head was the influencial ex-Master Cutler and ex-Lord Mayor, A.J.Hobson) to court for what they believed to be an evasion of the Merchandise Marks Act. The supposed evasion concerned the loose usage of the words 'hand forged' on what were really machine made razors.[108] The case, which was finally decided before Leeds Assizes, hinged on the amount of hand work which was necessary to constitute the definition 'hand forged'. It was lost by the union, when sample blades, supplies by the firm, were shown to contain considerable hand forging.[109]

The dispute however, lingered on when Charles Hobson accused the firm of supplying samples to the court which were of a higher quality than those supplied to the War Office, and was sued by Thomas Turner and Co. for libel.[110] Hobson received the unanimous

support of the cutlery unions, and the S.F.T.C. which throughout 1913, and until the outbreak of war, were engaged in discussions with the Cutlers' Company and the Cutlery Council, in an attempt to find an acceptable definition of 'hand forged'.[111] The men believed that the loose definition of 'hand forging' which had been established in the court case, could be applied to virtually any blade which had been "tapped with a hammer", and would inevitable result in the loss of Sheffield's trade in such 'hand forged' goods to America and Germany who would inundate markets with them.[112]

Thus, throughout this period, whilst there had been different emphases and disagreements over its precise relevance, the issue of fraudulent trade marks had continued to be considered as an issue of primary importance by all concerned. The debate and undertakings that it provoked were far greater than those caused by any other issues which were considered to affect trade. This tended to emphasize and cement Sheffield's isolation from national commercial debates. This unusual sense of priorities, often seemed antiquated and irrelevant to national onlookers, who did not share such values and understandings. The preoccupation with "The good name of Sheffield" was still evident in the 1950s,[113] as was the concern of working cutlers, who criticised the complacency of the large firms whose existence they believed was threatened by "unorthodox traders, street vendors and so on".[114] Moreover, when, in 1986, the government revoked legislation requiring non-branded goods to carry a country of origin mark, and thus allowed goods to be marked 'Sheffield' without any indication that they had been imported, The Star reiterated the same old fears: "anyone will be able to cash in on our hard fought-for and much-valued reputation, a reputation built on merit...what a windfall for the wideboys and fast-bucks.."[115] - the 'unrespectable traders' of the 1980s.

Closely associated with the importance attached to quality and merchandise marks, was the widely held belief amongst many members of the Sheffield trades, that trade would be ruined unless markets were firmly classified according to the quality of items they required, and thereafter they were to be

supplied with nothing below the standard to which they had become accustomed.[116] The Ironmonger was a particular vocal exponent of the belief that Sheffield was losing trade because the quality of the work which it turned out was simply not as good as previously.[117] This induced the buyers of high quality cutlery, particularly the Americans, to purchase elsewhere; infact this had started with the influx of poor quality Sheffield cutlery which had flooded into America between 1862 and 1865.[118]

Attitudes towards the decline of the once enormous (both materially and psychologically) American demand, are symptomatic of the way in which Sheffield manufacturers estimated and treated such problems. On the eve of its Civil War, America imported 90% of its cutlery from the U.K.,[119] and several notable Sheffield houses owed their fame and prosperity to this demand.[120] The demand in the boom of the early 1870s was enormous: Rodgers were sending ten tons of cutlery to America in the last week of that year.[121] Even in the later 1870s and 1880s, infact until the imposition of the Mckinley tariff, some firms continued to supply large quantities of goods to America.[122] This market had important psychological value in this period: it could set the tone of general confidence or pessimism.[123]

However, whenever problems with this market were voiced, extraneous difficulties, about which the Sheffield traders could do very little, were always given priority. In 1887 for example, the causes of the decline in trade were summed up in the following order:[124] "1st., and chiefly, a prohibitive tariff" (and this was before Mckinley). 2nd., the depression in the trade, 3rd. the policy of manufacturers and workmen in not adapting themselves to the requirments of their customers; 4th. the aversion of Sheffield workmen to the use of machinery; 5th. the higher wages paid in Sheffield for labour; 6th. the presence of skilled, Sheffield workmen in America. Whilst internal faults were recognised, the onus of these was placed on the workmen (see below). Moreover, these difficulties were subordinated to those of tariffs and the general decline in demand. The Mckinley tariff was therefore, with much justification, seen as the death knell to American trade, "simply monstrous".[125] J.D.Wing, one of Wostenholm's directors, sent to survey the situation in America in 1890, sent

back the following account:[126] "As I progress, I am becoming convinced that a continuance of the high tariff will be a permanent loss of a large portion of our pocket knife trade and not a little of our fine knife trade. The Americans make a knife which is apparently good enough for the average American. Appeals by strongly interested parties to both his patriotism and his pocket are not unlikely to succeed, and so our rise or fall largely depends on tariff revision. With a smaller place, smaller staff and smaller expenses we could doubtless keep on indefinately, but to resume the roaring 1883s, we must be less heavily weighed by the customs house on this side...I remember this district distinctly in 1876 without a single American pocket knife and though there were plenty of cheap English ones, Rodgers and we had preeminence. Rodgers is gone, and we survive only as a tottering wreck, while American goods load the shelves in almost every store".

However, many large firms continued to convince themselves, in the run up to the tariff, that trade could be maintained by concentration on the finest goods. In 1890, Christopher Johnson informed their American agents that "We do not know how the proposed tariff is likely to affect your operations but we have always been led to believe that the Americans <u>will</u> have <u>best</u> English goods, no matter what the price may be".[127]

Although some importation of finest goods did continue, most firms finally resigned themselves to the prohibitive nature of the tariff, and found other markets. By 1860 there were said to be only six Sheffield firms who were still dependent on the American market.[128] By 1907, the average duty on cutlery imported into America was 64%, pocket cutlery paying 78%, razors 55%, and table cutlery 50%.[129] Although other markets were found, the sheer size and lucrativeness of the American market was never forgotten, a contrast reminder of better times. It had been "a big market, the biggest in the world. Such orders as come from the U.S. cannot be expected from any other part of the globe."[130]

Thus, the cutlery trades gave undue emphasis to the demand side of their trading difficulties. Similarly illustrative of this approach was their concern with a whole range of short term and relatively superficial, short-sighted political reasons for

the decline in trade. Favourite explanations cited in local trade reports throughout this period included European wars[131] and especially the Eastern Question,[132] financial crises in America,[133] or problems with the exchange rates,[134] general elections at home or in America,[135] and even deaths in the Royal Family which quietened the London social scene.[136] The depressed state of British agriculture, and especially poor harvests or bad weather in the harvest season, caused fears and panic.[137] Even after 1900, the demand from the agricultural areas was treated as crucial to the prosperity of the trades.[138] Sometimes the most obscure sociological details were adduced to account for a decline in trade: in 1905, the decline in the demand for scissors was said to be caused by ladies "devoting so much time to mastering golf and other outdoor sports", thus "they have neither the time nor the inclination for sewing, embroidery work and old fashioned feminine occupations, and so cases of scissors and similar wares have not been needed".[139]

Whilst socio-political circumstances could, no doubt, play a significant role (-the bankruptcy of Joseph Fenton in 1880, for example, was caused by the bad trade which accompanied the political strife in Ireland, the firms most important market[140]), it seems certain that far too much attention was lavished on such peripheral problems.

In contrast when it came to assessing trade in terms of internal dynamics of the cutlery trades, to the identification and correction of problems within their own structure or approach which were causing them to lose control of markets, debate was far more muted.

Problems within the industry, which were detrimental to its trading position, were believed by manufacturers to lie with the intransigence and militancy of the men. They had forced up wages and prices in the 1870s,[141] and had conducted ruinous strikes[142] which had forced trade into the hands of competitors. They had refused to put in regular hours when trade was good,[143] and had restricted the supply of labour.[144] The American press, describing the Sheffield cutlers who went to work in America in the

1870s, were keen contributors to this disparaging portrait: the cutlers were "an ignorant, obstinate selfish lot of fellows, and it is a great mistake to import them to the U.S. as they will take the first pretext to strike".[145] Sheffield manufacturers were very quick to contrast the militancy and supposedly high earnings and standard of living of their men, with the frugal, disciplined American and German workforces, whose long hours and low pay were often cited as a major reason for the increased competitiveness of their goods in the international market.[146] However, at other times, when it suited their approach, manufacturers were equally ready to complain that it was the influx of skilled, Sheffield workmen into America which accounted for the Americans' successes in producing a higher quality item.[147]

But, if trouble with the workforce, combined with the frequently cited problems caused by the expense of traditional raw materials[148] were <u>so</u> important, it would be expected that the large scale introduction of labour and material saving machinery, would have been the obvious solution. However, whilst much machinery was introduced and efforts made to produce cheaper goods,[149] this was embarked upon only with considerable reluctance. Most firms were anxious not to betray, or at least not to be seen to betray, their high quality reputations.[150] Moreover, many continued to prefer to rely, as they had always done, on the supply of one market or geographical area,[151] whilst the greater stability in the demand for high class cutlery made it more attractive and assured.[152] However, it appears to have been gradually realized, that in order to assure constant trade, it was necessary to produce either a mixture of higher and commoner qualities of cutlery, or to attempt to sell to as large a variety of markets as possible, or both. One of the most striking features of these trades was their enormous sectionalism, and the instability of the many markets which they served: only rarely did a majority of cutlery firms experience similar conditions. Demand from different nations veered widely (see before). Home demand sometimes far surpassed continental and colonial demand, and sometimes vice versa;[153] trade often varied according to the type of cutlery produced, although table knife manufacturers were

generally better employed throughout the period than pen and pocket knife manufacturers.[154] Thus, in the large firms, different conditions were often experienced in different departments within the same week. In one well-known firm, the pocket knife department experienced its busiest and slackest times in October 1901 and in 1906 respectively, whilst the table knife department suffered its slackest period in living recollection in February 1905, but by November was fully employed again.[155] In the same way, the ten or so firms who were becoming increasingly specialized producers of government contracts, were affected by different trade patterns to other producers.[156]

Gradually, the larger and more prestigious firms came to experience considerably better and steadier trade than the smaller firms who were 'squeezed out' by those firms who developed more varied markets and contracts. They could normally grant credit and tide themselves over the bad times,[157] as contracts enabled them to demand, and succeed in obtaining, higher prices to cover their costs in inflationary periods.[158] By 1907,it was widely recognised that a diversification of markets was crucial: The Ironmonger remarked that "makers of cutlery in Sheffield, are realizing ...probably more so than they have ever done so before, the unwisdom of placing the whole of ones eggs in a single basket. Those relying on the home market have suffered a long and severe spell of depression, which gives no indication of passing away, whereas the foreign and colonial demand is quite brisk. The result is that those firms who have business connections with Canada, Australia, Russia,S.America etc. are doing very well but the remainder find it difficult to cover expenses".[159] Similarly, in November 1907, it was reported that "The cutlery industry is like the curate's egg, good in parts. Some firms are fairly busy, whilst others seem slack".[160]

This sectionalism and diversity of experience must have been an important factor behind the difficulties and even inabilties of these trades to identify or analyse wide reaching, broad causes of trade patterns. Whilst ever there were some firms, some products, some markets or some qualities which were prospering, it was easier to avoid such considerations and pass off

difficulties as the result of merely short term considerations.

If a diversified, constant, busy trade was to be maintained, despite the collapse of such traditional markets as America, it became vital to grasp commercial possibilities all over the world, and this required a quite detailed and up-to-date knowledge of commercial requirements. The major firms prided themselves upon, and were quick to brag of their extensive trading connections, all over the world,[161] whilst notable manufacturers boasted of their world-wide, fact-finding missions.[162] However, in practical terms, few firms had overseas offices: only the oldest and most prestigious manufacturers. There was little increase in the number of firms who used these, or in fact, in the number of overseas offices themselves, after the early 1880s.[163] Joseph Rodgers, for example, had offices in London, New York, Montreal and Toronto in 1871, but had given up their offices in Calcutta, Bombay and Havana, because they found it to be both easier and cheaper to conduct their business through agents.[164]

In many ways, the Sheffield cutlery manufacturers would appear to conform with the stereotype image of the late Victorian entrepreneurs' marketing ability: unable, unready or unsuited to push his goods abroad. Consular reports were extemely critical of the performance of the British firm, as, until recently, have been the judgements of historians. Aldcroft found that "If Britain was behind the times in techniques and methods of production, she was even further behind the times in her selling methods".[165] She was "committed to selling traditional goods in traditional markets",[166] and unwilling to study customer needs, to adopt metric weights and measures, to speak foreign languages and quote prices in foreign currency, to offer adequate credit facilities, and to send out knowledgeable sales representatives. Unlike German and American firms, the British placed too much reliance on the merchanting system.[167] The same opinions were expressed by D.Landes, who could have been discussing Sheffield cutlery houses in particular when he stated that "the Briish manufacturer was notorious for his indifference to style, his conservatism in the face of new techniques, his reluctance to abandon the individuality of tradition for the conformity

implicit in mass production".[168] The British firm has been especially criticised for relying, as Sheffield houses did, on the merchanting system, which in separating selling and production processes, placed communication barriers between the producer and the customer, which as well as hindering the free flow of information concerning customer requirements, loosened the manufacturers' control of the situation.[169]

Undoubtedly, there were huge problems with the system which was adopted. Letter books were full of complaints from agents and customers, grumbling about delays in the supplying of goods, of ships sinking, of wrong orders being sent, of knives being incorrectly marked.[170] Trade reports from both sides of the Atlantic claimed that the use of middlemen pushed up the prices of goods, whilst foreign agencies, it was claimed, would never sell goods as successfully as the firm's own practical representatives.[171]

The problems however, were not as easy to solve as the critics implied, particularly when business fluctuated as widely as it did in these trades: keeping large and available stocks was an ever more dubious policy, when demand was constantly threatened by wars, tafiffs and exchange rates.[172] Moreover, the possible objections to generalised criticisms are manifold, not least their over reliance on consular reports, which by their nature, and in all countries, were extremely critical.[173] More precisely, it can be seen that there were numerous advantages to be gained from the system adopted by Sheffield firms, and that businesses were anxious to develop and aware of foreign markets and the methods of exploiting them.

The large cutlery houses had long established and active agents in various nations, who were normally prohibited from taking similar goods from rival firms. They would be encouraged to 'push' the goods by a rate of commission of 5 to 10%, and could always be dropped in favour of more effective agents if they failed to market the goods vigorously.[174] Moreover, as well as branch offices, some firms used travelling salesmen and periodic visits by company officials to market their goods, and to check up on their agents.[175] Communications with agents were

often both regular and detailed.[176] Some firms like Wostenholms, were obviously aware of the need for the most direct possible means of communications, when in the 1890s, they attempted, despite American anger, to cut the American 'jobbers' out of transactions, and deal directly with their largest American customers.[177] They recognised that "The tendency of the modern day is decidedly towards reducing the distance between manufacturer and customer, and perhaps we are somewhat behind the times in not placing facilities in the way of bringing this about".[178]

However, most Sheffield firms, because of their small scale, and their highly specialized range of products, would always experience problems in selling their goods abroad.[179] They had made their contacts and reputations, by personal selling, as when George Wostenholm made trips to America in the 1840s.[180] In the small easily manageable domestic market, goods were still sold by means of reliable travellers, who toured a certain area every year, village by village, coming to know the various traders, and their circumstances intimately.[181] Such sales techniques were necessary for the highly specialized and differentiated British products, the sale of which required continual personal representation in the market.[182]

Given the need to market the special qualities of Sheffield's cutlery as personally as possible, it is hardly surprising that manufacturers should concentrate on colonial demand to replace that of America, from the 1890s onwards. In this policy, they appear to have experienced considerable success.[183] This was not simply because colonial markets were 'soft options' to which British manufacturers retreated in the face of foreign competition,[184] but because of the cultural links and values which made Sheffield's products and sales techniques most acceptable. As Pagé stated,"Les colonies ainsi formées, permettent de trouver facilement de bons representants, conaissant bien la langue et les coutumes du pays où ils se sont fixées de leurs compatriotes, forment le première noyau de la clientèle qui reclame les produits de la mère patrie." [185]

Moreover, it appears that Sheffield firms were, at least in the latter part of this period, quite well informed about opportunitites and demand in far off corners of the world. This

was however, through the pressure and efforts of Sheffield's commercial community generally, rather than the efforts of individual firms. Howard Vincent, Sheffield's energetic Conservative M.P. and Fair Trade campaigner, went to considerable pains to locate and obtain samples of cutlery from areas where an exploitable market was believed to exist, which the Chamber of Commerce duly advertised and exhibited. Manufacturers seem to have been slow and unready to act upon this guidance.[186] The Chamber of Commerce was also extremely active in organising lectures by a variety of commercial attachés, on the trade prospects in the lands with which they were acquainted. Again, the tangible results seem to have amounted to little.[187] The Board of Trade Jounal continued to reiterate, year after year, that a huge trade could be done in certain types of cutlery, with certain markets, for example China, Turkey and Canada, but the repetition would imply that such demand was never catered for.[188]

Even the Cutlers' Feast became a major commercial occasion, where various influential British, foreign and colonial personages were invited for their commercial knowledge and contacts. British ministers were amongst the most frequent and sought after guests, because of their power over government contracts, which were so important to the heavy Sheffield trades, and to a lesser extent, the cutlery trades.[189] Diplomats were quite frequent attenders, as were foreign notables, with particular emphasis given to those who had contacts with those markets where Sheffield already already had a foothold.[190] The tradition continued that the chief guest would stay at the house of the Master Cutler. Thus Kitchener stayed with A.J.Hobson in 1902, when "the socializing that went on formed a basis for making contacts which would later be used to form business links".[191] George Howson's guests in 1893, included General Roberts of Kandahar, the Duke of Norfolk, Admiral Field and the American ambassador,[192] whilst Maurice Rodgers' principal guest was the Chancellor of the Exchequer, Michael Hicks Beach.[193]

The Chamber of Commerce (of which cutlery manufacturers formed a significant part) consistently passed resolutions in favour of a full adaptation of the metric system of weights and

measures, as early as 1870,[194] and were in favour of more detailed trade returns: they were the main force behind the Board of Trade's separation of hardware and cutlery export returns in 1898.[195] The Chamber also insisted upon the importance of foreign language tuition for travellers and manufacturers, and subscribed to the University language school.[196]

However, cutlery manufacturers, when left to their own devices and initiative, do not appear to have been so forward-looking or enterprising. They were, for example, apathetic about entering International Exhibitions when this involved too much effort. In 1851, in London, there were 39 exhibitors from the Sheffield cutlery trades, and 66 in 1862, but only twelve in 1855 when the exhibition was held in Paris, and only one at Vienna in 1873.[197] Entrants to remoter exhibitions were very few, despite the continual encouragement and even chastisement of the Secretary of the British Commission, who frequently wrote to the Chamber of Commerce with instructions to make firms exhibit.[198] The Chamber placed advertisements in the press and gave the exhibitions considerable publicity,[199] but to no avail. In 1872, for example, it was "observed with regret, that Sheffield, notwithstanding the efforts of the Chamber of Commerce, appears likely to be unrepresented at the [Vienna] Exhibition".[200] Similarly in 1873, the Sheffield Independent's trade reporter remarked that "a dozen leading firms who I could name have shirked their duty and remained at home...England with all her pretence of enterprise and manufacturing superiority, should be represented at this — the greatest International Exhibition which has ever yet been held — and the one calculated to throw immeasurable fresh channels open to her commmerce".[201] In refusing to enter, firms were declining an opportunity to observe what foreign competitors were producing, and what type and style of goods were required in far-off markets. Suggested reasons for their non-participation included apathy on the part of firms who were resting on the laurels of their reputation, to fears that their ideas and designs would be copied by competitors.[202] More pertinent reasons may have been the small scale and relatively limited finances of many cutlery houses, and moreover, their belief in

high quality product specialization, which was an attempt to cushion themselves from the competing mass produced wares exhibited at such events. Whilst it may have been a false and idealistic perception of reality, some Sheffield firms, still reliant upon their reputations and quality products, perhaps felt that they had insulated themselves sufficiently to decline the need to participate in such events. Certainly enthusiasm waned further in the later part of this periqd,[203] despite the efforts of the British Commissioner to drum up enthusiasm by involving the S.F.T.C. in their organization committees.[204]

A further indication of the traditional confidence in and dependence upon the ablility of a high quality reputation to sell itself, was the indifference displayed by Sheffield firms to advertising, the art of which American cutlery manufacturers were successfully exploiting with great energy. King C.Gillette, believed that "the whole success of this business depends on advertising".[205] The accuracy of this belief was demonstrated by the success of his safety razor, which required a vigorous advertising campaign in order to teach Americans to treat their old razors as disposable.[206]

Sheffield traders, despite their pride in the name 'Sheffield', and their acute awareness of the value of commercial reputations, were slow to advertise their names. Whilst some impressive salesrooms, following in Rodgers' example, were eventually erected,[207] adverts were generally limited to discreet testimonials of quality[208] and not aggressive attempts using foreign journals to open up trade or offset decline.[209] Even in 1926 the Chamber of Commerce still felt it necessary to give a course of lectures an "Salesmanship", realising that "we do rely too much on the quality of our products to sell themselves".[210]

Similarly, there is considerable evidence which suggests a reluctance on the part of cutlery manufacturers to adopt procedures, and styles of cutlery which would have won for them a wider and more enthusiastic body of consumers. Whilst German houses frequently gave free quotes in local currencies, Sheffield firms still sent their price lists all over the world in pounds, shillings and pence.[211] Little effort appears to have been made

to communicate in foreign languages. In October 1877, the prestigious firm of Christopher Johnson was still informing German customers that "as your English is very good, we hope that you will write to us in that language, because we do not understand German, and we know very little French".[212] The Board of Trade frequently stressed that if such markets as Brazil and Russia were to be exploited, thoroughly competent representatives, both practical, and fluent in the native languages would be needed.[213] Even local trade reporters criticised the enduring but oblivious practice of cutlery houses who "send catalogues to the continent, giving dimensions in inches, and prices in £.s.d., and devote a good deal of their space to tea-pots and toast-racks. Now continental people eat no toast and drink little tea".[214] The French consul in Sheffield was similarly critical of its manufacturers, who produced 90% of their catalogues in English and had very few representatives who were fluent in two languages.[215]

Bad and unstylish packaging was another criticism which Sheffield manufacturers were slow to rectify. As early as 1858, Marsh Bros. were being informed by their agent in New York that "Everybody in the trade nearly, now puts up spring cutlery in boxes, and so far as I could ascertain, without extra charge. On the shelves, our goods in bundles, beside those of other people in boxes (making neat square bales) with handsome black gold and green labels, do certainly look...very 'old fogyish'".[216] However, Marsh Bros. did at least remedy this: later catalogues show samples of a variety of attractive labels which they had adopted.[217]

With regard to styles of their cutlery, Sheffield manufacturers were subjected to much criticism over their unreadiness to abandon their old patterns and styles of products which had traditionally sold very well. Firms were widely and constantly criticised in the local press, particularly by the Sheffield Independent's American trade correspondent, 'The Yorkshireman', who was presumably an ex-Sheffield manufacturer living in New York. He painted a picture of acute entrepreneurial apathy: American retailers were said to have "sent patterns to England from time to time, but they appear to be indisposed to change from old styles, until we have given up any idea of anything new

from that country".[218] To no avail the correspondent entreated Sheffield manufacturers to visit and study the 1876 Philadelphia exhibition.[219] he depreciated the display sent by Brookes and Crookes, which although "beautiful in design and workmanship" was "selected with so little judgement in regard to the reqirements of this market, that on the whole, little attention will be given to this branch of the trade".[220] Nevertheless, Brookes and Crookes were still boasting at the Calcutta Exhibition of 1884 that their gold medal had been won with items taken entirely from stock - no new goods had been made at all.[221] The Times was similarly critical of Sheffield manufacturers' tendency "to manufacture what he has always been in the habit of doing, and to sell to the colonies what he can sell at home; whilst the American studies the market...adapts himself to the circumstances by the hour".[222]

Undoubtedly the Chamber of Commerce was aware of the inclination of firms to "obstinately adhere to...old styles and...old finish",[123] but such an assessment undervalued the responsiveness of Sheffield manufacturers to the demands of the market which they believed themselves best able to serve. New styles and patterns were sought out and adopted: the Bowie knife , which conquered America between the 1830s and 1850s, was a Sheffield adaption to American demand;[224] Marsh Bros. were constantly researching the American market in the 1860s;[225] and Wostenholms, throughout the 1890s were receiving advice from their American agents, on the styles of goods which could be most successfully marketed in that country.[226]

It is questionable how far, within the values, targets and structural framework that was set for and by many Sheffield firms, changes could or ought to have been implemented. The small, specialized businesses, with their quality wares and reputation for such, found it extremely difficult to adapt themselves to the idea of, and to compete with the mass produced cheap German and American goods. Moreover, in their willingness to make small quantities of speciality goods, which often carried individual features and marks requested by the customer, Sheffield firms showed themselves to be energetic and willing to cater for a

particular demand. Blanket criticism of failures to produce neatly packaged, uniform and standardized goods,[227] pay insufficient attention to the impossibility of combining such mass production features with the 'one off' market Sheffield served. And this market, although the subject of far less comment and discussion, was still stable, viable and an obvious choice for Sheffield firms. In an article critical of the entrepreneurial zeal of Sheffield producers, The Times nonetheless evidenced this distinction: "In their natural wants, Europeans are essentially Conservatives, Americans and colonials are distinctly progressive. An Englishman likes to use a thing because he is accustomed to it; an American or colonial loves a novelty because it is new".[228]

Footnotes

1. P.L.Payne, 'The Emergence of the Large Scale Company in Great Britain', Economic History Review, 2nd Series, XX, 1967, pp.524-5.
2. The trends outlined in this and the next section are based on information given in more detail in appendix 3: Trade Patterns in the Sheffield Cutlery Trades.
3. P.P. 1912, CXI, Census of Production, 1907, p.144, overall sales were £1,534,000 of which those to the U.K. accounted for £770,000.
4. Lloyd, pp.342-3.
5. Chamber of Commerce minutes, Jan.1886, S.C.L., L.D. 1968/2; P.P. 1886, XXI, R.C. on the Depression, S.Uttley, q.1155; see appendix 3, 1886.
6. A.D.K.Owen, A Report on Unemployment in Sheffield, Sheffield 1932, pp.12-21, these cycles follow the pattern of trade experienced by the Sheffield industries generally.
7. P.P. 1892, XXXVI, R.C. on Labour, Answers to questions of Group A, pp.13-15.
8. See chapter 7, pp. 214-22, 'Hours'.
9. P.P. 1886, XXI, R.C. on the Depression, C.Belk, qs.2659. 2686, 2700, 2803; P.P. 1889. XIII, S.C. on Sweating, W.J.Davis, q.25367, Sheffield firms could still "defy the world both in the good and in the common class of goods."
10. P.P. 1889, XIII, S.C. on Sweating, G.Huskin, qs.24984-5, C.Law, qs.25030-1.
11. C.Pagé, La Coutellerie, p.1498, "Il est importé peu de coutellerie en Angleterre; cela tient surtout aux formes spéciales de la coutellerie anglais, principalement pour les couteaux de table."
12. S.I., 26.2.1905.
13. See chapter 2.
14. The Ironmonger was particularly ready to criticise the Sheffield cutlery trades, see for example, 25.7.1885, pp.171-2., 22.1.1887, p.124; The Times, 26.12.1901.
15. P.L.Payne, 'The Emergence of the Large Scale Company', pp.524-5. See also Bernard Elbaum and William Lazonick (eds.), 'An Institutional Perspective on British Decline,' in The Decline of the British Economy, Oxford, 1986, p.7, "Forced to retreat from competition with mass produced methods, British firms sought refuge in higher quality and more specialized product lines, where traditional craftsmanship and organization could still command a competitive edge."
16. See chapter 2.

17. The Ironmonger typified this attitude, when it stated that the Americans were not "brave enough to concede free trade," 1.3.1887, p.140.
18. P.P. 1886, XXI, R.C. on the Depression, C.Belk, q.2659, "These tariffs are in many cases, all but prohibitory, and would be entirely so, were it not for the demand for special brands." See also Chamber of Commerce minutes, April, 1881, S.C.L., L.D. 1986/2.
19. Chamber of Commerce minutes, 29 Jan., 1891, S.C.L., L.D. 1986/3.
20. S.I., 29.11.1893.
21. P.P. 1886, XXI, R.C. on the Depression, C.Belk, q.2707.
22. S.I., 11.6.1881, Atkinson Bros. had gone to considerable effort to produce French styles of cutlery.
23. For example, a sub-committee of the Chamber of Commerce was established in 1880, to monitor the proposed changes in the French tariff, whilst its president gave evidence before the commissions which discussed the issue, in both London and Paris, Chamber of Commerce minutes, June 1880, April 1881, S.C.L., L.D. 1986/2.
24. Tariff barriers were erected against British cutlery by Spain and Portugal (S.I., 24.12.1892, Chamber of Commerce minutes, 30.Jan. 1893, S.C.L., L.D. 1986/4), by S.American states (S.I., 12.10.1907), and by Belgium and Germany (Chamber of Commerce minutes, 30 Jan. 1893, 31 Jan. 1902, S.C.L., L.D. 1986/4 and /6).
25. E.g., S.I., 5.1.1884, 18.4.1891, 24.12.1892.
26. S.I., 13.3.1870, 26.3.1870, criticism of bias employed by American customs officials; Chamber of Commerce minutes, April 1881, S.C.L., L.D. 1986/2, unclear wording of the French tariff, which invited obstructionist tactics by customs officials; ibid., Jan. 1887, S.C.L., L.D. 1986/3, most blatently, the Argentinian customs officials charged exceptional duties on the goods of Joseph Rodgers.
27. S.I., 25.6.1881, A.Vallance, New Statesman, 24.5.1952, "The leaders of Sheffield's industry recognise, I think, that Sheffield's future is bound to rest in "quality" production."
28. Brittain, almost despite himself, had become an advocate of protection, largely through his dealings with and knowledge of French commercial policy. His views, expressed in 1875, in a pamphlet entitled British Trade and Foreign Competition, (Sheffield, 1878) caused significant waves amongst Sheffield's commercial community. A series of exchanges and letters in the S.I., in Oct. and Nov. 1877 between Mundella and Brittain, brought the debate before a wider public in Sheffield.
29. S.I., 14.10.1879.

30. S.I., 11.2.1886.
31. S.I., 2.1.1886.
32. S.I., 13.3.1905.
33. S.I., 5.3.1904; 9.3.1904.
34. F.Callis, Sheffield Under Free Trade, Liberal league, Sheffield Branch, 1903, p.13; S.I., 29.12.1903.
35. S.I., 16.2.1904; S.F.T.C., Annual Report, 1904, pp.8-9.
36. See chapter 1, p. 6 ; see also R.E.Leader, Cutlers' Company, vol.I, pp.105-121.
37. Ibid., p.114.
38. Joseph Rodgers, Under Five Sovereigns, p.15, H.Bexfield, I*XL, p.5, "The name "Ubstenholm" on any piece of cutlery is a guarantee of highly-skilled craftsmanship - the outcome of two centuries of experience and progress."
39. Lloyd, p.143.
40. S.I., 23.12.1871.
41. The 1875 Trade Marks Act, R.E.Leader, The Cutlers' Company, vol.I p.123; Lloyd, p.142.
42. The 1883 Patents, Designs and Trade Marks Act, R.E.Leader, The Cutlers' Company, vol.I, p.124; Chamber of Commerce minutes, 30 Jan. 1884, S.C.L., L.D. 1986/2.
43. S.I., 14.2.1887.
44. S.I., 23.3.1886; A.Vallance, New Statesman, 24.5.1952, p.608.
45. Chamber of Commerce minutes, Jan.1873, S.C.L., L.D. 1986/1.
46. S.I., 23.3.1886.
47. P.P. 1892, XXXVI, R.C. on Labour, W.F.Wardley, q.19294, "government should insist that all goods should be plainly and distinctly marked with the manufacturer's name, and where machinery had entered into competition with hand labour in the production of articles of utility, the machine made goods should be so marked that would give the purchaser an opportunity of choosing such articles as suited him best, and also would be no injustice to the hand producers, as at present."
48. S.I., 23.3.1886.
49. S.I., 13.2.1886, to many, it had become an accepted article of faith that in 1843 the Master Cutler had publicly destroyed blades with false indications of quality and fined the two culprits large sums of money. Although the action had in fact been taken under a Public Act, 59 Geo.III, the general public continued to believe that the powers belonged to the Cutler's Company and should be invoked again, despite the protestations of its officials to the contrary; P.P. 1886,

XXI, R.C. on the Depression,R. Holmshaw,qs.1239-40, 1206-8, 1251-2, C.Belk, qs. 2659, 2745-6.

50. P.P. 1886, XXI, R.C. on the Depression, R.Holmshaw, qs. 1260-2, 1233-5, 1242-3.

51. Ibid., R.Holmshaw, q.1258.

52. Ibid., C.Belk, q.2659.

53. Ibid., qs.2659, 2755, 2821, 2641; H.Hughes, q.2952.

54. Ibid., H.Hughes, q.2963.

55. S.D.T., 17.3.1886, a letter from the Master Cutler, Charles Belk.

56. S.I., 5.3.1886; Borough of Sheffield Council Minutes, S.C.L., C.A.8 (8), Minutes of the Trades Inquiry Committee, 24.3.1886, two main allegations were made: that German goods were sold by Sheffield firms as Sheffield made; and that Sheffield firms sent out goods of low quality, which were marked with indications of high quality.

57. The Telegraph, reported in S.I., 23.2.1886; also Sheffield witnesses who appeared before the Select Committees on Merchandise Marks of 1887 (P.P. 1887, X, cd.203), and 1890 (P.P. 1890, XV, c.7586).

58. S.I., 19.3.1886, 20.2.1886, 13.3.1886.

59. S.I., 19.3.1886, a public meeting addressed by the secretary of the table blade forgers' union.

60. Borough Council Minutes, Trades Inquiry Committee, 24.3.1886, S.C.L., C.A.8 (8); S.I., 3.4.1886. See also R.A.Church, The Kenricks in Hardware: A Family Business 1791-1966, Newton Abbot, 1978, p.312.

61. R.E.Leader, Cutlers' Company, vol.I, p.128; S.I., 9.9.1886; this political division recognised nationally in, for example, the Iron and Coal Trades Review, reported in S.I., 30.10.1886.

62. S.I., 14.10.1886.

63. S.I., 26.10.1886.

64. S.I., 25.3.1886.

65. E.g., S.I., 14.2.1887.

66. S.I., 16.2.1886.

67. S.I., 2.3.1886; 21.10.1886.

66. S.I., 2.3.1886.

69. S.I., 21.10 1886. G.Barnsley, J.Hobson, G.F.Lockwood, W.W.Harrison and J.F.Atkinson, as members of the Town Council were opposed to its appointment of a Committee of Inquiry into false marking, (S.I., 24.3.1886) whilst Alderman Brooksbank was widely acknowledged to be involved in some types of

false marking, particularly in the importation of German goods (S.I., 21.10.1886). In contrast, W.B.Harrison, an executive at Joseph Rodgers, shared a platform with the S.F.T.C. in the early days of the debate, (S.I., 19.3.1886) whilst Richard Elliott, F.P.Rawson, W.Parkin and W.Nixon were all outspoken opponents of false marking, (S.I., 8.12.1886) as was F.Mappin on the Town Council (S.I., 25.3.1886) and a number of smaller cutlery manufacturers who voiced their opinions in the Sheffield Independent, (e.g., S.I., 16.2.1886; 23.3.1886).

70. P.P. 1890, XV, S.C. on Merchandise Marks, C.Hobson, qs.1306-0; S.I., 13.2.1889.
71. S.I., 14.2.1887; S.D.T., 14.2.1887.
72. Ibid.
73. Ibid.
74. P.P. 1887, X, S.C. on Merchandise Marks, H.Hughes, law clerk of the Cutlers' Company, and G.F.Lockwood, cutlery manufacturer and Master Cutler.
75. P.P. 1890, XV, S.C. on Merchandise Marks, C.Hobson, of the S.F.T.C. and J.Jeffries, a small master.
76. Ibid., C.Hobson, q.1097.
77. Ibid.,q1099.
78. Chamber of Commerce minutes, Dec.1887, S.C.L., L.D., 1986/3, upon this issue the S.F.T.C. stated that "our interests are indentical, and we cannot afford to trifle or hesitate in our policy."
79. Ibid., Dec.1887, Jan.1888, S.C.L., L.D. 1986/3.
80. P.P. 1890, XV, S.C. on Merchandise Marks, C.Hobson, qs.1160, 1473-80.
81. Chamber of Commerce, minutes, 30 Jan.1890, S.C.L., L.D. 1986/3.
82. G.Tweedale, Sheffield Steel, p.181-2, Joseph Rodgers placed an advertisement in The Iron Age, an American trade journal, stating that the company would "thankfully receive from the trade any information touching any such or other violation of their name and trademarks." Prosecutions for trade mark abuses were frequent, e.g., Joseph Rodgers prosecuted domestic traders, S.I., 24.1.1872, 3.4.1909, and a Solingen firm, S.I., 17.7.1889; Mappin and Webb also prosecuted offenders, S.I., 6.5.1905, as did Wostenholms, S.I., 11.1.1906.
83. Chamber of Commerce, minutes, 31.1.1889, S.C.L., L.D., 1986/3; S.I., 18.1.1890.
84. Ibid.
85. They continued to press for the application of the 1887 Act throughout the world, ibid., 31.1.1895, April 1887, 31.1.1889, 30.1.1890, 30.1.1894, S.C.L., L.D., 1986/3 and 4.

86. See chapter 5, pp. 185-6.
87. S.I., 27.5.1899, Cutlers' Company Minute Book, 1890-1906, 27.6.1889; Chamber of Commerce minutes, 25.1.1900, S.C.L., L.D. 1986/5.
88. Chamber of Commerce minutes, 25.1.1900, S.C.L., L.D., 1886/5, Needham, Veall and Tyzack, George Butler and Thomas Ellis all promised between £25 and £50 to the fund.
89. The Hammer, 10.2.1894.
90. S.I., 17.2.1900.
91. S.I., 11.8.1906.
92. S.I., Industrial Supplement, 19.1.1912, p.5.
93. Chamber of Commerce minutes, Feb. 1913, S.C.L., L.D., 1986/8.
94. Cutlers' Company, Annual Report, 1911.
95. S.I., Industrial Supplement, 19.1.1912, p.4, George Senior was followed by Andrew Balfour, both of whom were steelmakers, Cutlers' Company, Annual Reports, 1911, 1912, 1913.
96. Ibid.
97. Ibid.
98. Ibid., 1914.
99. Ibid., 1913.
100. Cutlers' Company Adminsitrative Records, C.28.
101. Ibid., C.34.
102. Cutlers' Company, Annual Report, 1911.
103. S.I., 4.3.1899; 2.3.1901; 3.6.1905, the head of one large concern said of the government "They are the worst sweaters in the city."
104. S.I., 1.9.1900; 9.3.1901; 25.5.1901; 2.3.1901.
105. S.I., 2.3.1901.
106. P.P. 1908, Fair Wages Committee, R.Holmshaw, q.2552; G.H.Shaw, qs.2604-6; A.J.Hobson, qs.5553, 5551-2, 5557-8.
107. Ibid., G.Shaw, q.2662.
108. S.F.T.C., Annual Report, 1914, p.10, D.Parry, 200 Years of Sheffield Cutlery and
109. S.I., 4.6.1913; 6.6.1913; 7.6.1913; 25.3.1914; S.D.T., 4.6.1913. Edge Tools, Ridgeway, 1986.
110. S.I., 25.3.1914.
111. Cutlers' Company Minute Book, 1912-1924, 19 Aug.1913; 5 May, 1914.
112. S.I., 26.7.1913; 25.3.1914.
113. An article entitled "The Good Name of Sheffield" by W.G.Ibberson, in the International Cutler, December 1952, vol.2, no.5, p.7.

114. Ibid., p.8.

115. The Star, 7.11.1986, pp.4, 1. See also A.Vallance, The New Statesman, 24.5.1952, "Setting aside the local mass production of shoddy ersatz cutlery which doubtless serves a real demand but brings no lustre to the city's name, there are, say, a score of substantial, long-established firms whose production is organised on lines which represent a reasonable compromise between old craftsmanship and modern machine methods: their trade marks - I*L, for instance, or the Star and Cross - are famous, and the quality of their output is still admirable, even if prohibitive taxation has killed off many of the old luxurious lines."

116. See chapter 2, pp.52-3 ; this attitude is still evident in A Survey of Sheffield's Industries, compiled by the Trades and Tariffs Committee, Sheffield Junior Chamber of Commerce, 1956, p.4.

117. E.g., The Ironmonger, 21.9.1878.

118. Ibid., 15.1.1887; S.I. 17.6.1875.

119. G.Tweedale, Sheffield Steel, p.128.

120. Pawson and Brailsford, 1862, p.140, Wostenholm's trade was "almost exclusively" American, their 'Washington Works', built in 1848, was testimony to this fact; G.Tweedale Sheffield Steel, p.130, the importance of the American market is also evidenced by Brookes and Crookes' 'Atlantic Works', Butchers' 'Philadelphia Works', and Graves styling of their business as 'American Merchants'.

121. G.Tweedale, Sheffield Steel, p.130.

122. E.g., Needham Veall and Tyzack, 'Creditworthiness and Standing Responsibilities of American Customers', 1875-1888, S.C.L., N.V.T. 18 .

123. E.g., S.I., 10.12.1870, 17.2.1870, 14.2.1880, 18.6.1881, 21.5.1887; 30.10.1875; 1.1.1870, 5.1.1863; 5.4.1884, 18.10.1884; The Times, 21.1.1876.

124. The Ironmonger, 1.3.1887.

125. W.R.Williamson, I*XL means I Excel: A Short History of the Bowie Knife, [n.p.], 1974, p.15.

126. Ibid., pp.15-17.

127. Christopher Johnson, Letter Book, 1887-1890, S.C.L., M.D. 2369.

128. S.I., 31.10.1896; 21.11.1896.

129. Lloyd, p.349.

130. S.I., 29.11.1893, F.Callis, p.10, whilst stressing that cutlery houses had developed all sorts of other lucrative markets to replace it, this pamphlet indicated the common concern and interest in, as well as memory of American

demand, when it posed the question "What is the use of saying that the cutlery trade is prosperous when we have lost our great and lucrative business with the U.S.?"

131. S.I., 21.10.1876, 28.4.1877, 24.12.1880, 14.3.1882, 3.10.1885.

132. E.g., Spanish - American War, S.I., 26.4.1898, 14.5.1898; Russo - Turkish War, S.I., 15.2.1879, 28.6.1902, 3.3.1906.

133. E.g., S.I., 16.2.1878.

134. E.g., S.I., 3.12.1870, 31.12.1892, 6.5.1893,17.2.1899, 1.8.1908.

135. E.g., S.I., 3.10.1885, 2.4.1892, 2.12.1892.

136. E.g., S.I., 15.2.1896, 2.2.1901.

137. P.P. 1886, XXI, R.C. on the Depression, C.Belk, q.2896; S.I., 28.6.1872, 23.8.1879, 11.8.1882.

138. E.g., S.I., 23.5.1914.

139. S.I., 29.7.1905.

140. S.I., 21.10.1880.

141. S.I., e.g. 11.4.1872, 4.5.1872, 7.5.1890.

142. See chap. 2,42-3,53-4 ;e.g., S.I., 26.7.1890; 28.9.1912; 15.3.1913.

143. E.g., S.I., 21.10.1871, 11.4.1872, 25.5.1872, 15.5.1890, 31.5.1890, 2.9.1899, 20.7.1901, 6.7.1901, 12.4.1902, 6.4.1907.

144. E.g., 11.4.1872, 18.9.1900, 2.10.1911, 15.3.1913, The Times, 26.12.1901.

145. From the Ironworker quoted in S.I., 13.10.1879.

146. P.P. 1886, XXI, R.C. on the Depression, C.Belk, qs.2659, 2724, 2882. However, as German wages incresed in the early 1900 s this explanation became less valid, S.I., 29.3.1914, 6.11.1908.

147. Chamber of Commerce, minutes, Jan.1877, S.C.L., L.D. 1986/1; S.I., 20.8.1879; the Ironmonger, 15.1.1887; P.P. 1892, XX, Factory Inspectors' Report, c.6720, p.10.

148. S.I., 19.1.1907, 22.2.1873, 11.5.1901.

149. See chapter 2.

150. Ibid.

151. E.g., Christopher Johnsons continued to direct attention primarily to Australia and New Zealand, S.C.L., M.D. 2375-6; Francis Newtons supplied Dutch and German markets, Deakins supplied Spain and Portugal, Sheffield and Rotherham, Up-To-Date, pp. 136, 139; British Industrial Publishing Co., Industries of Sheffield, pp.32, 80, 81, 100.

152. E.g., S.I., 15.4.1871, 29.11.1873, 19.11.1887, 5.9.1891, 25.3.1893.

153. E.g., S.I., 27.5.1905, 24.1.1874, 3.6.1882, 30.5.1874, 7.4.1877, 22.7.1885, 16.8.1882.

154. E.g., S.I., 18.2.1871, 21.11.1885, 5.10.1895, 25.10.1895, 16.11.1896, 18.7.1897, 3.9.1902; Labour Gazette, 1902, vol.10, p.142.

155. P.P. 1909, XVI, R.C. on Labour, Report by Mr Steel-Maitland, appendix XXXVI, p.354.

156. S.I., 3.2.1900, 5.1.1901, 12.1.1904, 5.11.1904.

157. E.g., S.I., 21.12.1878, 8.9.1883, 6.12.1902, 31.3.1906. In the short sharp depression of 1908, many firms were short of orders and under acute financial pressure, but the local trade report, S.I., 25.5.1908, warned that "it is absurd to class the leading houses with them."

158. S.I., 1.6.1872; Christopher Johnson, Letter Book, 1887-1890, 25.4.1890, S.C.L., M.D. 2369; S.C.L. N.V.T., 7.12.1889.

159. Quoted in, S.I., 13.4.1907.

160. S.I., 2.11.1907.

161. Men of the Period, p.63, of Brookes and Crookes, it was said that "It is not too much to say that their goods are favourably known on the Continent and in America, Africa, Australia and Canada, as they are at home; and in all these distant markets the honourable repute of Sheffield cutlery is sustained by every article"; see also Joseph Rodgers, Under Five Sovereigns, pp.15-17.

162. Sheffield and Rotherham, Up-To-Date, p.128; see appendix 4, John Hobson.

163. See appendix 2.

164. The Ironmonger, 31.1.1871.

165. D.Aldcroft, 'The Entrepreneur and the British Economy 1870-1914', Economic History Review, 2nd Series, XII, 1964, p.125.

166. Ibid.

167. Ibid., p.124, 125-7; see also M.Kirby, The Decline of British Economic Power Since 1870, London, 1981, p.8.

168. D.Landes, 'Technological Change and Development', p.564.

169. C.Kindelberger, Economic Growth in France and Britain 1851-1950, Cambridge, Massechusetts, 1964, p.149; P.Mathias, The First Industrial Nation, London, 1983, p.419.

170. E.g., Hobsonholmes Letters to America, 1895-6, S.C.L., Hbs.R3; Christopher Johnson, Letter Books 1875-9 and 1887-1890, S.C.L., M.D. 2367, 2368; Marsh Bros., S.C.L., Marsh.241-9.

171. The Ironmonger, 22.1.1887; S.I., 20.4.1894.

172. See, for example, the experiences of Marsh Bros., with the volatile American demand, S.Pollard, Marsh Bros., pp.22-7, 35-40.

173. S.J.Nicholas, 'The Overseas Marketing Performance of British Industry, 1870-1914', Economic History Review, Nov.1984, XXXVII, p.492.

174. Christopher Johnson's Letter Book, S.C.L., M.D. 2367, 2369, 2371, their agents in Australia and New Zealand were in frequent contact, as were those in Cape Colony and Natal: none were permitted to sell the goods of rival firms; Needham Veall and Tyzack had a contract with their agents in the S. and W.Indies, who were to supply their goods for three years, at 10% commission, but who again, were not permitted to sell the goods of rival firms, S.C.L., N.V.T. 10; see also, S.J. Nicholas, p.498; G.Tweedale, Sheffield Steel, p.170.

175. W.Williamson, p.17, S.C.L., N.V.T.; M.D. 2377.

176. S.C.L., M.D. 2309, 2371; N.V.T.10.

177. G.Tweedale, Sheffield Steel, p.171.

178. S.C.L., Ubs, R.3 letters to America, 1895-1896, 21.5.1896, 27.2.1896, 20.3.1896, 23.3.1896.

179. S.I., 22.2.1902, cutlery houses brought their travellers home again when trade was slack, because their expenses were too high to warrant their payment when orders were not forthcoming; S.I., 8.3.1888, a typical commercial traveller for a large firm, was paid £10 per month, plus 2% commission, plus all expenses outside the U.K.

180. G.Tweedale, Sheffield Steel, p.169.

181. C.Johnson, Travellers itinary for the W. of England, 1885 and 1914, S.C.L., M.D. 2690-1, itinaries were well documented, with considerable detail on individual traders, e.g., "a very respectable man, but we fear he is short of money", or "the trouble of getting paid is not worth the amount done", or "he goes with Needham Veall and Tyzack." The 1914 itinary was virtually the same as that of 1885.

182. P.L.Payne, 'British Entrepreneurship in the 19th Century,' p.54.

183. See also pp. 76-7 ; F.Callis, p.11, the loss of the American trade was "a blessing in disguise" because of the stimulation it gave to the development of a wider range of alternative markets.

184. E.Hobsbawm, Industry and Empire, London, 1969, p.191.

185. C.Pagé, La Coutellerie, p.157.

186. Chamber of Commerce minutes, Feb.1887, Jan.1889, Jan.1897, S.C.L., L.D. 1906/3 and 4, samples were sent by the consul at Pakhoi, by the Chinese consul and from

the colonies, especially the W.Indies.

187. Ibid., Jan. 1908, S.C.L., L.D. 1986/6; S.I., 23.4.1890.

188. Board of Trade Journal, vol.13, April-June 1911, p.542; vol.77, April-June 1912, p.120; vol.84, Jan-March, 1914. p.765.

189. L.Bilby, 'The Cutlers' Feast', M.A., Sheffield, 1935, p.82, between 1905 and 1920 eleven feasts were held, to which six admirals, eighteen generals and 32 ministers were invited.

190. Ibid., 1905-1920, 26 diplomats were invited.

191. Ibid., p.81.

192. S.I., 3.11.1893.

193. S.I., 5.11.1897.

194. Chamber of Commerce minutes, Dec. 1870, p.201, 30 Jan. 1890, 30 Jan. 1894, 25 Jan.1900, 30 Jan.1896, S.C.L., L.D. 1986/1, 3, 4, 5.

195. Ibid., Aug. 1878, 27 Jan. 1898, S.C.L., L.D. 1986/2 and 4.

196. Ibid., 31 Jan. 1902, 8 Feb. 1907, Feb.1910, S.C.L., L.D. 1986/6 and /7.

197. C.Page, La Coutellerie, p.1464; P.P. 1874, LXXIII (i), Report on the Vienna Universal Exhibition of 1873, c.1072, p.51.

198. Chamber of Commerce minutes, Jan.1872, Sept. 1874, S.C.L., L.D. 1986/1.

199. Ibid., Jan.1885, S.C.L., L.D. 1986/2.

200. S.I., 18.9.1872.

201. S.I., 6.6.1873.

202. S.I., 24.1.1881.

203. Chamber of Commerce minutes, 30 Jan.1894, S.C.L., L.D. 1986/4, "the prevailing opinion of this district continued to be "against taking an active part in international exhibitions."

204. Ibid., 24. Jan.1908, S.C.L., L.D. 1986/6.

205. R.B.Adams, King C. Gillette, 1978, quoted in G.Tweedale, Sheffield Steel, p.165.

206. Ibid., p.136.

207. Ibid., p.174; Sheffield and Rotherham Up-To-Date, p.119, Rodgers opened showrooms in the 1830s "and although regarded with disfavour at that time by competing firms, has since been generally adopted by local manufacturers who then resented the innovation." See chapter 4 , pp. 127-8.

208. E.g., Thomas Ellis, S.C.L., M.D. 1717/8.

209. G.Tweedale, Sheffield Steel, p.174, advertisements by Sheffield cutlery firms were common in the American trade journal, The Iron Age until the 1880s, but once trade began to decline, the advertisements stopped.

210. Quality of Sheffield, Oct. 1926, p.50, 'Sheffield Art and Sheffield Care'.
211. Board of Trade Journal, vol.75, Oct.-Dec. 1912., p.62, vol.83, Oct.-Dec. 1913, p.281; vol.84, Jan-March 1914, p.519; S.C.L., N.V.T. 4, Needham Veall and Tyzack's pattern and price list for the S.American market, was priced in £.s.d.
212. Christopher Johnson, Letter Book, Oct.1877, S.C.L., M.D. 2367.
213. Board of Trade Journal, vol.77, April-June 1912, p.628; vol.84, Jan-March, 1914, p.519; vol.85, April-June 1914, p.683.
214. S.D.T., 19.10.1903.
215. S.I., 2.4.1887.
216. S.C.L., Marsh 248, 22 Jan.1858.
217. Ibid., 258, 259, 260.
218. S.I., 15.11.1877.
219. S.I., 21.3.1876.
220. S.I., 6.5.1876.
221. S.I., 27.2.1884.
222. The Times, quotes in S.I., 28.8.1886.
223. Chamber of Commerce minutes, Jan.1887, S.C.L., L.D. 1986/2.
224. G.Tweedale,Sheffield Steel, p.178.
225. Ibid., p.177.
226. S.C.L., Wbs. R.3, Letters to America, 1893-1896, 13.11.1895, 11.12.1895; see also n.22.
227. S.I., 17.6.1875, 'How Sheffield Lost the American Trade'; The Ironmonger, 25.7.1885.
228. The Times, quoted in S.I., 28.8.1886.

Chapter 4 Industrial Structure

Until recently, the survival of outwork and hand labour has been treated as a pre-industrial remnant, an inevitably doomed deviation from the real direction of 19th century industrialization, which was towards factory-based, mechanized production.[1] The Sheffield cutlery trades however, demonstrate the continued rationality and economic viability of outwork, as well as its possible coexistence, and even symbiotic relationship with factory production. Large firms coexisted with and even used middlemen and merchants, as well as a plethora of independent producers and outworkers. This relationship was reflected in the mixture of industrial premises - self-contained factory units, public and private tenements, workshops and domestic manufacture. Most firms, even the largest and most prestigious, continued to be quite small, family concerns, with a limited capital base, producing a range of specialized goods, and reliant to some extent, on the hand labour of independent producers.

This structure was partly the result of, and certain ly facilitated by the original form of the industry and the deeply felt and accepted beliefs and perceptions which resulted from it . The success and reputation of the trades had been, and was still believed by many, to be dependent on their handicraft base and the quality, specialized production that this permitted. Given these understandings and perceived priorities, as well as the actual structure that emerged, of small scale works, full of independently minded contractors, in which the installation of large-scale, mechanized plant was often physically impossible, it was more rational to move within the existing, preferred structure.

The system brought some disadvantages to manufacturers, particularly the more reputable ones: quality and deadlines were harder to predict and control; excessive competition, price cutting and overproduction were rife. However, the balance of convenience remained firmly with the coexistence of factory and outwork, mechanized and hand production. The success of this structure was reliant upon a ready supply of cheap labour. This was made available partly by the traditional ease of entry into the industry

of marginal, small producers, and partly by more modern factors of foreign competition and the competition of basic mechanized processes. Moreover, the actual production processes involved in cutlery manufacture were extremely open to effective economies through the progressively more minute subdivision of labour. The workers had traditionally endorsed this structure because of the independence and opportunities to 'raise themselves' and exercise specialist skills which it had once offered, and to a very small minority, continued to offer. Increasingly however, they became victims of a system of which they had once approved, whilst their weaknesses compounded the advantages of the system to manufacturers. Oversupply of labour and independent production impeded trade unionism and practices that restricted entry, which in turn allowed the admission of more cheap labour and further overproduction.

Central to demand and market factors in these trades were the minute specialisms available from Sheffield firms, and the fluctuating (in terms of cyclical and seasonal patterns) nature of demand, both of which made it unwise to invest in large, mechanized plant which would produce unsuitable goods and be underused for considerable periods. Even the largest firms who did manufacture many of their own goods by machine, using their own workmen, had these products finished and given a more 'one-off' style by outworkers, and coped with above-average demand by giving more work out. Moreover, for an industry so concerned with its traditions, and at root quite conservative, mechanization and a wholesale switch to factory production, involved too great a psychological, as well as economic upheaval - "It involved exchanging well-established and familiar routines for new and untried methods, either with a brand new workforce or with an old one determined to protect their jobs."[2] Thus, whilst old-established understandings and practices had been largely responsible for the maintainance of basically handicraft production, and, in many ways, represented a line of least resistance for manufacturers, this did not stop the compromise structure which emerged from being both effective and productive.

Throughout this period, the large-scale, self-contained cutlery factory remained an exception in Sheffield. Not only did

the large firms coexist with the complicated maze of outworking, independent producers, but in themselves they retained many features which marked them off from more 'modern' factory-based industry.

In 1887 there were 3,110 factories and 1,243 workshops in Sheffield, "most of them for the carrying on of the several branches of the cutlery trades",[3] but these 'factories' included 1804 rooms, each "occupied in most cases by several persons".[4] In 1896 there were still 170 tenement factories with 2,900 occupiers, with very little change on this figure by 1914.[5] Furthermore, this excluded the workers, whose number was unknown, in the underworld of small domestic workshops where no power was employed. The average size of the work unit was then, very small:, the 15,970 workers enumerated in the 1901 census were employed in 2,732 establishments, giving an average of five males and one female employed in each,[6] whilst by 1913, the average number of adult males per establishment appears to have fallen even lower.[7] Even the largest firms, 38 of whom were scheduled by the 1912 Commission of Inquiry into the Application of National Health Insurance to Outworkers, employed 2,753 outworkers, but only 203 of these worked for just one firm.[8] The continued importance of outwork was also illustrated by the £224,000 gross value of cutlery produced by outworkers in 1907,[9] whilst workshops and factories which rented all, or part of their power, still accounted for 25% of all output, and 35% of the total workforce in that year.[10]

At the largest firms, full-time inworkers would be employed on the premises, but a number of outworkers (the exact number depended on the state of trade) were also engaged: a typical firm had half of its work done "out" in "small places" by outworkers in 1867.[11] The steadiest and best men would be kept as inworkers, yet in 1912 no firms employed only inworkers, but many still employed only outworkers.[12]

Within large 'works' owned by reputable firms, many inworkers were not under the direct control of the firm, but rent paying, independent contractors to whom firms supplied room and power - often, rent was even paid by inworkers who were the direct employees of such firms.[13] Usually men would furnish tools and

materials, selling their goods to, and buying their materials from any manufacturer or merchant. Occasionally, the owner of the premises would supply materials and buy the finished products, deducting sums from the rent and power, and then paying accordingly.[14] Even in 1907, it was still common practice for large manufacturers who employed their own grinders, to allow the men to bring in the work of other manufacturers when trade was slack, partly to help their men to earn a sufficent wage to pay the rent.[15] These were owned either by large manufacturers and rented out only to their own men (private wheels), or to a combination of their own men and some independent contractors (semi-private wheels) or by a company who rented out space to individual grinders and took no interest in the wheel beyond the appointment of an overseer who would act as an agent and collect the rents, and an engine tender. Even in private wheels where it was established that the relationship between owner and worker was that of master and servant, workers could still take in other work when trade was slack, although the owner always retained first call on the man's time.[16] The number of wheels increased enormously over the earlier part of this period, from 132 steam driven and 32 water driven in 1865[17] to 12 water wheels and 3-400 steam grinding wheels in 1889.[18] This growth can be accounted for not only by the increase in the use of steam-powered machinery but also the fact that steam grinding wheels were good speculative investments, owned sometimes by individuals, and sometimes by limited companies.[19]

Forgers, hafters and cutlers were also increasingly employed in factories and tenements were power was supplied, although amongst the poorest workers, for example the Wadsley springknife cutlers, the proportion working in domestic workshops increased.[20] In many factories, grinders, cutlers and forgers, as well as members of totally diferent trades, could all be found working under the same roof. In a public grinding wheel in 1907 it was possible to find "a scissor manufacturer, a fluter, an ivory worker, a spring knife cutler, a heavy grinder, a light grinder, a file manufacturer, and so on; you may have fifty different trades going on at one time in one particular wheel".[21]

In 1912, it was still very difficult to categorize or define a

'firm'[22] The larger firms were not the only enterprises to designate themselves 'manufacturers'. Merchants who did not supervise any production of their own, but merely bought goods over the counter and stamped them with their mark (as did some large firms) were sometimes called 'manufacturers',[23] as were the notorious small manufacturers or 'little mesters' who were either small scale producers, or merchants, or both, but virtually always poor themselves.[24] Differing opinions regarding the status of the little master reflected the actual diversity in his possible position and role. Some held that the title implied that his enterprise should involve him in a certain amount of commercial risks and liabilities.[25] Sometimes he was an actual workmen himself, obtaining orders from larger factors, merchants or manufacturers, and then employing a few men to help him in the execution of these orders.[26] He would be paid by the piece, but would generally pay his men a datal wage.[27] He would pay for the rent of the trough or side, for the tools and power.[28] and it was often held that to qualify for 'little mester' status, he had to obtain his own materials, and make up the goods in their entirety.[29] He would take out orders from factors, merchants or large firms and take them back to the same when complete.[30] Occasionally, he would sell work to the highest bidder.[31] Thus in many ways, he was an outworker who took greater financial risks, and employed datal workers, sometimes up to eight, in good trade.[32] Some little masters however, were more akin to small merchants, in that they purchased goods from outworkers, and did not manufacture themselves.[33] The 'working' little master was always more common than the 'factor ' little master; in the view of one factory inspector, the little master was not "a middllemen" but "a workman",[34] forced by circumstances to 'sweat' those who worked for him.

Outworkers who rented a trough or side, or if they were extremely poor, or purely manual workers, worked in their own homes,[35] would obtain work from little masters, factors, or from large firms, for which they would be paid by the piece.[36] Sometimes even these workers would employ others beneath them, but usually only members of their own family - particularly women and children.[37]

Throughout this period, there was little change in this basic partnership of a small number of merchant-manufacturers at the top, and assorted lesser middlemen and producers providing the link between the top and the mass of 'independent' wage earners. The position of the middleman was particularly flexible, merging from an entrepreneurial manufacturer, employer or independent producer himself, to a manager buying for and from other people, to something between the two, as the circumstances demanded and his expertise allowed.[38] Trade unionists increasingly drew a distinction between 'respectable' little masters who worked for themselves and took risks, and those who simply superintended and did not work themselves, and were closely associated with sweating.[39] Even in 1947, this partnership of large manufacturers, middlemen and independent workers was still the rule, and, it was believed, would continue to dominate the industrial structure whilst ever suitable premises existed: "The opportunity to rent room and power on cheap terms, either in a tenented factory, or in the premises of some large firm, is the basic explanation for the persistence and widespread occurrence of this tiny unit in the making of cutlery".[40]

However, after 1900, commentators increasingly stressed that the trades were moving towards a more 'normal' industrial structure as the little masters were bought up, and expansion and mergers created more large-scale firms. This was partly the result of factory legislation which resulted in the extinction of many older tenements,[41] but also the increasing domination of the market by large firms which were taking complete control of their own production. Reports of the largest firms buying up small masters to act as the direct foremen and managers of their premises were common,[42] whilst in 1907, Samuel Osborn's Tower Wheel shut down through lack of demand for the hulls.[43]

Certainly, there was an expansion in the number of large works with extensive premises over this period. By the 1890s, most notable firms had large works with prestigious showrooms, despite the initial reluctance to build these.[44] Although it was rarely stated what proportion of a workforce were still outworkers, total workforce did increase enormously: Rodgers employed 2000 by 1897, producing a huge weekly output,[45] whilst Wostenholms employed 650

in 1900.[46] Harrison Bros. and Howson, who had moved to extended premises in 1900, employed 600 in 1910,[46] Walker and Hall employed 2,000 in 1914,[48] whilst smaller firms such as Sellars and Newtons, employed 100 and 400 workers respectively in 1897.[49] Premises which were often rented, were quite large: Wostenholm's Washington works covered 5424 square yards.[50] Smaller works such as Haywood's Glamorgan works and Hides in Hollis Croft covered 1,540 square yards and 600 square yards[51] respectively. Many firms extended their premises in the boom of the early 1890s,[52] or in the period 1900-1910.[53] Whilst a typical works could look impressive-the Glamorgan works for example had four storys with warehouses, offices, work-shops, - floors were divided into 20 to 30 separate rooms, many of which were let out to independent contractors.[54]

The scale of business was also extended as large firms increased the number and range of their products, by taking over smaller businesses.[55] It became increasingly common to produce both cutlery and electroplate: in 1907 cutlery factories and workshops were producing £189,000 of electroplate per year[56] as "These industries which were formerly regarded as entirely distinct are now commonly united under the same management".[57] Some firms were diversifying their production to cover files and tools,[58] whilst others were abandoning their traditionally staple cutlery outputs to concentrate on the presumably more lucrative heavier branches.[59] Other firms were producing an enormous variety of heavy and lighter metal goods by the 1900s. Needham Veall and Tyzack's range in 1879 was bewildering, extending from the production of every variety of cutlery and electroplate, to steel converting and manufacturing, iron founding, wire, tool and machine manufacture.[60]

Another sign of modernization and concentration of capital can be seen in the growing assets of the largest firms, their conversion into limited liability concerns, and the high dividends received by their shareholders. Joseph Rodgers was the first company to take up limited liability, in 1871, and maintained a very lucrative 12 to 17% dividend on shares throughout most of this period.[61] Wostenholms transferred to limited liability in 1875, with a capital of £100,000 divided into 4,000 shares of £25 each.[62] Until the 1880s, profits were 5-10% up on normal dividends, but the slump in American trade

in the mid-1880s meant that the reserve fund had to be called on, and with the McKinley tariff, dividends fell by half.[63] However, the success of the firm is indicated by the fact that when it was sold to the new limited company it was worth £70,000, the plant tools and stock being valued at £30,000, the goodwill and patent rights at £20,000.[64] When Needham Veall and Tyzack became a limited company in 1897, its capital was £60,000, [65] whilst Mappin and Webb which became a limited company in 1908 had profits of £54,000 by 1913 and capital of £750,000.[66]

Nevertheless, such firms were neither typical of the industry as a whole, nor were they as 'modern' as they appeared. Small scale specialist concerns were still very common: appendix 2 illustrates that the vast majority of firms continued to produce just one type of cutlery, whilst less than ten firms produced a wide variety of different types of cutlery. Most firms were still the occupiers of small, unimposing premises: a stranger visiting Brookes and Crookes Atlantic works in 1882 would "search in vain for a block of buildings with an imposing elevation, with extensive showrooms filled with magnificent and costly goods or with anything in the shape of display".[67] Between 1880 and 1901 most firms occupied premises with ratable values of under £150 p.a., whilst none had a value of over £1,500.[68] Survival rates were lower in the 1870-80 boom period, when the total number of firms was larger, but they increased after this date, so that 63% of firms survived 1880-1901, being the sustainers of the class of large firms. Very few firms were newly established as large, but worked they way up from a small scale.[69] Most firms continued to have a very limited capital and credit base. Of the 29 firms for which details of bankruptcies were given 1857-93, 17 had assets of £1,000 or less,[70] whilst many had extremely small capital bases.[71] Even those firms that took out limited liability were small in number,[72] and, moreover, preferred the cautious and hesitant step of private limited liability. This status was legally recognised in 1907 and allowed companies to retain their original management and privacy of the past, but also limited further growth and entrepreneurial stimulus to the extent of the named shareholders.[73] Even firms which did become limited liability concerns were anxious to stress, on every possible occasion, the continuity of their present state of affairs with the

past. Family control of the business was especially important and proudly boasted[74] - this was rarely changed even when a firm became a limited liability company.[75]

However, if such firms were neither typical of the industrial structure, nor progressive or self-contained, it is nevertheless possible to demonstrate that this structure and these features were often maintained for rational economic reasons. The continued coexistence and viability of a combination of manual and mechanized, factory and domestic production was feasible and profitable for two main reasons: firstly, markets and demand were specialized, the ability to sell resting on marginal differentiations of 'one off' products; secondly, labour was both skilled and abundant, production processes being capable of extensive subdivision, allowing the production of specialized goods at relatively low prices. The targeting of such a high quality market can be seen as a rational choice.[76] Similarly,the techniques used to cheapen production whilst retaining its skilled, handicraft content, were equally resourceful and successful. Nevertheless, these two features - the preferred market and the preferred production techniques - can also be seen to stem from the continued domination of the industry, in practical and psychological terms, of traditional handicraft practices and their resultant ethos.

Demand and markets have been seen as the crucial factor in determining the survival of outwork. When, as in the cutlery trades, overall demand was not increasing and was subject to wide fluctuations and market uncertainties, and, at the same time, was for finished consumer goods in which specialization, diversity and originality were major selling points, investment in large, mechanized factories was a questionable policy.[77] Sheffield's manufacturers marketed an enormous range of cutlery, the diversity of which it would have been quite impossible to produce by machine. When relatively small quantities of specialized goods were being produced, outworkers were used as 'feeders', to supply lines on which firms could not find full employment for their inworkers.[79] Some products were so specialized that they were only manufactured by outworkers,[80] whilst large firms frequently made agreements with small specialist producers, to supply them with certain classes of goods.[81] Thus work

was taken in and brought out, making the whole of the centre of Sheffield, with its outworkers, teams, merchants and manufacturers, like one huge factory, "drawn together by the complex interdependence of skills and products"[82] which assured the necessary versatility of product and skill.

Outworkers were also used by the large firms to cope with the seasonal and cyclical fluctuations in demand which affected these trades. It was considered pointless to invest in plant and machinery, to pay overheads and fixed charges, when a sudden upturn in demand could be handled by simply widening the circle of outworkers to whom work was given out.[83] Whilst a 'stint' was fixed for inworkers, according to which enough hours work were assured to give a minimum living wage, with outworkers, there was no such "unwritten compulsion":[84] they were merely dispensed with. Thus in 1907, there was still "a rather strong feeling amongst employers that on the whole the provision of factories does not pay and that it is better to depend on employing outworkers if you can get them. You have no responsiblity to find them employment in bad times, and generally the system is increasing in Sheffield that instead of keeping stock and running it up in bad times in order to keep your workers together, you only employ men when it pays you to employ them".[85] Hence the huge and constant changes in the size of the factory-based workforce, which expanded and contracted as trade demanded.[86]

Equally important to the viability of the system which operated in Sheffield, was the nature of the workforce: its skills and ability to produce a whole range of specialized products; but also the openness of its handicraft skills to subdivision, subcontracting and general cost reduction. Central to the effectiveness of this system of production was an oversupply of labour and competition for work, which pulled down piece-rates, and the ability of employers to make use of this situation. The success of the Sheffield trades was still largely dependent on the abilities and quickness of the individual worker, and therefore considerable entrepreneurial energy was devoted to exacting the maximum advantage from the workers skills.[87]

It is possible to locate the origins and persistence of this oversupply of independent workers, in traditional practices and

values, which had and to some extent still did dominate the industry. Time and time again, observers noted the independent outlook of the cutlery workers, their will to use their often specialist skills in independent production, an ideology assisted by the continued practical ease of entry into such production. Whilst the likelihood of a worker 'raising' himself to employer standing and associated wealth and status diminished to become virtually non-existent, the belief in such an 'open' system which allowed potential upward mobility, was slower to die. Most of the famous companies had started as one man concerns:[88] "men have made fortunes and got good positions in it, and others think that they can do the same; hence we have a large number of people in a trade which requires, in some instances, very little capital, trying to earn a living".[89]

Whilst ever the industry remained a basically handicraft trade, such options were always possible,[90] but all were agreed that such independence and freedom, both actual and potential, had profound effects on the character of the workforce. "Very informal habits were formed, and a set of traditions handed down which it is easy to see arose entirely out of the peculiar circumstances under which they worked. To this cause we must attribute the freedom from restraint which is so characteristic a feature of the Sheffield cutlery worker today. It is this love of freedom which makes him tolerate the practices which are the despair of those who wish to see his lot improved".[91] Men were "ambitious", "independent", anxious "to get on in the world",[92] unwilling to work under one master: "the cutler and grinder in Sheffield is a man who considers himself entirely independent of any man employing him, no matter what may be the relationship between them. A man is his own master in the sense at least that he claims the privilege of coming to work and going away again exactly as it suits his convenience";[93] "every man regards himself not as an employee, but as a master on his own account".[94]

Some men were still inspired by this ideal and achieved some success, but for the majority independent production was undertaken in times of economic depression, when normal supplies of work ceased, often in order to pay workshop rents, "in fact, the entry of

workers into independent production was as likely to represent downward mobility as it was a move up the economic or social scale"[95]. It was undertaken to prevent things from getting any worse. Thus, "every broken down cutler sets up in them [tenements] on his own account, and gets work from any master who will give it him to do. The worker works on his own account as a master in every sense of the word, but he is simply an under contractor, subject to wretched conditions often".[96]

Such independent producers often attempted to increase their profits by employing 'teams' of sub-employees, or by sub-letting the work to further small producers. Whether they worked themselves, or 'sweated' others to make a profit, became the focal point of the long-lasting and often heated debate which centred on the 'respectibility' or otherwise of these small masters, and their exact role is pulling down prices and conditions.[97] There were small masters who took work from the large manufacturers, who were very much like any other workmen, "he is simply a poor man, one of the ordinary skilled workmen".[98] They did not sweat others, but by their own skills and industry could feasibly 'rise' from their present status.[99] They sometimes employed datal journeymen or helpers if the trade was 'double handed', to whom they paid a lower piece wage, but the wage ratios were traditionally established and the system felt to be wholly acceptable.[100] However, there was also the class of small master who "decided not to work himself, but wants to live upon the work of somebody else, who does not himself work, but simply superintends; he gets orders and sees that they are executed but does not do the handicrafting himself often; he employs a few men, women, boys and girls to execute the work; and these are the hot beds of sweating in Sheffield.[101] These men were seen by trade unionists as "trade spoilers"[102] who employed 'teams' of up to 30 boys, men and women, usually divided into groups of six, who were put to highly subdivided, specialized tasks which would be completed both quickly and easily. The teams received datal wages, whilst the team master rewarded himself with piece rates.[103] The unions vehemently opposed this system which was linked with the increasing subcontracting and subdivision of work in these trades. Particularly unpopular were the small masters who merely picked up work from

warehouses and sublet it again, at a considerably lower rate than that which they were receiving from the warehouse. Some unionists even suspected an agreement between the small masters and warehouse managers, whereby profits from the second subletting of the work, were divided between them.[104] Furthermore, the payment of the teams by datal rates, whilst the master received a piece rate, meant that it was in the master's financial interest to speed the team up, although the men would receive nothing for their extra work. The team leader could therefore, get a better profit out of his men than the head of a large firm, because he knew best how to 'hustle' them: "He knows exactly what they can do, and he sees he gets it done".[105]

However, the most important profit-maximising mechanism, was the implementation of an extensive subdivision of labour within the team. This subdivision was central to the lowering of wages and therefore prices, which kept the whole system viable, and has been seen as "the primary axis of 19th century growth"[106] in the Sheffield trades. Once the basic processes of cutlery production were completed by machine, using largely unskilled labour,[107] work could be finished by the army of subcontractors and deskilled teams. This allowed the production of the neccessary variety of products and styles at a relatively low cost.

As early as 1878 this subdivision was extremely advanced, and described as "very fully carried out in the cutlery trades".[108] Trade unionists bemoaned the fact that so few men could now produce an item of cutlery from start to finish: "Some of the older manufacturers, the fathers of the present race, often prided themselves that they could go into the shop and go through the whole process of producing every portion of an article themselves, put it together, and turn it out complete; but that kind of thing to a large extent has passed away".[109] The skills of the traditional craftsmen passed almost into folklore as "the work done by the ancient Hallamshire cutler is now divided amongst quite a multitude of hands".[110] Traditional subdivisions were gradually but enormously extended,[111] until labour became increasingly deskilled, capable of producing only one very specific item, by a specialized process, which usually

involved rudimentary mechanized techniques.[112] Increasing mechanization however, entailed more subdivided manual work for the completion of finishing processes, thus cementing the link between and coexistence of mechanized and manual production, factory and domestic based labour.[113] Whilst the team leader would usually complete the most skilled and difficult work, he handed out the easier tasks to his team,[114] an increasing number of whom were boys and women - low pay category workers.[115] Furthermore, the system was self-perpetuating: subcontracting, in reducing the overall level of skill in the industry, made teams even more necessary, to replace the disappearing talents of the 'all round' craftsman.[116] As subdivided labour was cheaper, there became less and less work for the craftsmen, who, when trade was bad, were forced to work at subdivided tasks too.[117] Thus, even the most skilled workmen were increasingly capable of performing only specialized tasks, albeit to a high standard.[118]

The cost effectiveness of the subdivision of labour was reflected in the wage rates available in the industry: although they were generally quite static over this period, the disparity between the top and bottom levels available in a particular craft, reflected levels of skill, whilst those crafts in which subdivision was further extended, were the worse remunerated.[119]

In the manipulation and exploitation of this system, most attention was focused on the role of the factor in driving hard bargains and pulling down the wage rates, largely because he was a target on which 'respectable' manufacturers and workers would agree in their attacks. During the clamour and debate which surrounded the visit of the Select Committee on the Sweating System to Sheffield in early 1889, the full extent of the awful conditions in the cutlery trades were revealed. Some men worked over 60 hours per week for wages under 14 shillings; investigations revealed a "deeper depth" of "degrading and debasing"[120] conditions than many had imagined or chosen to acknowledge.

At the beginning of this period, the factor was believed to be at the heart of the problem for "the little master is always at the mercy of the factor".[121] Factors, knowing the financial insecurity of small masters in periods of poor trade, could barter them down.

or refuse to accept goods at a previously accepted price, forcing these small masters to reduce prices, to "cut each others throats,"[122] which entailed the reduction of their men's wages. Thus, "When work is taken in and more asked for, you are informed that there are no orders, but you can call again the next day. The next day, work is again refused, on the plea that there is not an order in the place, and that other sweaters are getting them done for less. The outworker is allowed to go away empty-handed, and with much indifference on the part of the sweater, the mechanic is led to understand that he can call again or not, just as he likes. On again presenting himself for work, the same answer is given, but if he(the outworker) cares to take three gross at 1s. per gross less, he can have them as stock. In the meantime, the outworker has applied to other sweaters with no good result; the outworker, pressed for rent and household necessities goes back to the warehouse and takes the knives at the reduction".[123] After a few weeks, the whole sweating and price reducing process would be resumed.

Some firms, particularly the large houses, claimed to loath this system, in which price-cutting developed a momentum of its own, creating competition which forced even large manufacturers to bring down their prices and wage rates. Such reduction usually necessitated a similar decline in quality and sometimes in profits.[124] Thus, it was claimed that "The team system is to a certain extent forced on manufacturers. I am averse to the team system but I cannot entirely do without it. The reason for that is that if you are not willing to employ a team yourself, someone has an outworker who does employ a team, and he is able to undersell you, therefore you are driven to a team, whether you want it or not, because if you refuse to avail yourself of the cheaper system of producing goods, you will loose the trade".[125] This undercutting was particularly acute in a depression, when large firms became the only concerns to pay statement wages, until they too were forced to reduce wages and prices.[126] Thus it sometimes happened that an unusual alliance of respectable large manufacturers and trade unions was formed, to combat the competition of small masters and factors, with the large firms using the unions to enforce an equalization and standardization of wage rates before wage increases could be implemented.[127]

Moreover, there were certainly smaller-scale disadvantages for manufacturers, inherent in this system of production. Deadlines were harder to guarantee, whilst the embezzlement and theft of materials and finished items was common. Workers signed false names, or absconded with goods which they had taken out; managers even at the lagest firms, falsified work, pay and order books.[128] More seriously, on the few occasions (which were mainly at the beginning of this period) when trade was so good and mechanized means of production still so underdeveloped, that there was an inadequate number of workers to meet the demand, outworkers were capable of dictating their own terms. Firms were forced to scrabble for outworkers, whose wages rose well above the rates paid to inworkers, and who would refuse to work on poorer paid common work. This affected even the most organized houses:[129] in 1866, "Even goods made to the order of one merchant were likely to be sold to another, if his merchant reached the cutler's shop earlier on a Friday evening and offered higher prices... Buyers took to entering workshops and bidding indiscriminately for all the work in sight".[130] However, such occasions became very rare, as trade never again reached the boom levels of the 1870s, whilst mechanization and the increasing use of young and female workers created a larger pool of labour.

Overall, despite pleas to the contrary, most manufacturers appeared to benefit from the system as it operated in these trades. Apart from all the demand-orientated incentives available from the use of outworkers, manufacturers frequently played the same game as the factors they condemned, using the work of small masters and teams to cheapen their own prices, or to blackmail their own men into accepting wage reductions when trade was bad.[131] Prices were further reduced by the implementation of increased deductions and excess counts when the men were too weak to resist, and by the general lessening of trade union power which was the result of a dispersed, divided workforce.[132] More generally, the reliance on subcontractors, ridded manufacturers of many of the problems of direct management and administration of labour, leaving most of these tasks to the team leader or subcontractor. This policy was particularly tempting in these trades, where the workers were notoriously independent and hard to discipline.[133]

For the men however, the advantages of the system were fewer, and diminished further as the period progressed. Their attitude was marked by a slow realization that the industrial structure which they had once willingly endorsed, no longer brought the benefits and advantages with which it had once been associated. They bore all the burdens of the flexibility which the system offered, but no longer gained commensurate advantages: their 'independence' was illusory, their status and pay ever declining. The industrial relations of the period, reflected this steady movement towards the realization and acceptance that a factory-based system of production would offer greater rewards to the majority of workers.

Footnotes

1. For further details see R.Samuel, 'The Workshop of the world: Steam Power and Hand Labour in Mid-Victorian Britain', History Workshop Jounal, no.3,1977; J. Schmiechen, 'State Reform and the Local Economy: An Aspect of Industrialization in Late Victorian and Edwardian London', Economic History Review, XXVIII, 1975; G.Stedman Jones, Outcast London: A Study of Relationships between Classes in Victorian Society, London, 1984; D. Bythell, The Sweated Trades: Outwork in Nineteenth Century Britain, London, 1978; J.Zeitlin and C.Sabel, 'Historical Alternatives to Mass Production: Politics, Markets and Technology in 19th Century Industrialization', Past and Present, no.108, 1985.
2. R.Samuel, 'The Workshop of the World', p.54.
3. Annual Report of the Chief Inspector of Factories and Workshops, 1887, p.35, (1888) C.5388.
4. Ibid.
5. Annual Report of the Chief Inspector of Factories and Workshops, 1896, p.41; Pollard, History, p.206-7.
6. Lloyd, p.182.
7. Ibid. 8,000 adult men were employed in 2,800 factory and tenement units, giving an average of three men per unit. Even in 1944, of the 500 cutlery making establishments, 301 employed not more than five workers, whilst only 28 employed more than 50, Ministry of Labour and National Service, Report by the Cutlery Wages Council, 1946, p.2. The Cutlery Research Council, which would have comprised a disproportionate number of large cutlery firms, consisted of firms of the following sizes in 1960:

40	firms	employed	5	- 9	workers
35	"	"	10	- 19	"
20	"	"	20	- 29	"
23	firms	employed	30	- 49	workers
16	"	"	50	- 99	"
15	"	"	100	- 450	"

H.C.Baker and S.Mitchell, 'Factors Affecting Technical Progress in the Cutlery Industry', p.46.

8. P.P.1912, II, Report of the Committee on the Application of the National Insurance Act to Outworkers, W.Hobson, qs.4004-20.
9. P.P.1912, Census of Production, 1907, pp.143-4, 306; Lloyd, p.207.
10. Ibid., p.207.

11. P.P.1865, XX, J.E.White's Report , cases 198 (p.43), 214,215 (pp.46-7). Wostenholms employed only 3-400 workers, whilst Unwin and Rodgers employed 100 on their own premises and 150 outworkers. See also Pollard, Three Centuries of Sheffield Steel, p.35; C.Pagé, La Coutellerie, p.1463.
12. P.P.1912, II, Report on the Committee on Outworkers, W.Hobson, qs.3996-7; P.P.1908, Committee on the Truck Acts, 1907, A.J.Hobson, qs.12392-3; P.P.1909, XVI, R.C. on the Poor Laws, Report by A.D.Steel-Maitland, appendix XXXVI.
13. P.P.1892,XXXVI, R.C. on Labour, R.Holmshaw, q.19396;P.P.1908, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12060-68; P.P.1865, XX, J.E.White's Report, case 198 (p.43). See Appendix 2.
14. Wostenholm's inworkers had to liquidate their debts for rent and power by weekly reductions from their wages, but if they fell into arreas, the whole sum was taken from their wages, S.C.L.I, Undertakings1860-1884. P.P.1889, XIII, Select Committee on Sweating, G.Huskin, q.24922, S.Uttley, qs.24721-2, J.W.Davies, q.25267; Annual Report of the Chief Inspector of Factories and Workshops, 1907,p.80, (1908), Cd.4166.
15. Annual Report of the Chief Inspector of Factories and Workshops, 1907, p.80. A typical agreement at Saynor, Cooke and Ridall in 1902, stipulated that the worker would be provided with all working materials "and all other necessary things", but he could work only for that firm although "the employer shall not be bound to find and provide [the worker] with full work unless they have work on hand sufficient for the purpose". (S.C.L., N.V.T.7).
16. P.P.1865, XX, J.E.White's Report, case 197 (P.43); Annual Report of the Chief Inspector of Factories and Workshops, 1887, pp36-7; ibid.,1907, p.80; P.P.1889, S.C. on Sweating, W.J.Davies, q.26306; P.P.1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.12060, 12252-69; P.P.1908, Committee on the Truck Acts,1907, J.Dodgson, qs. 988, 1007; S.I.27.11.1891.
17. J.C.Hall, The Sheffield Trades as Influencing Life and Health, and more particularly File Cutters and Grinders, London, 1866, p.11. The number of steam wheels was said to have doubled 1847-67, P.P.1865, XX, J.E.White's Report, case 39 (p.20).
18. Lloyd, p.179;P.P.1889, XIII, S.C. on Sweating, W.J.Davies, q.25244.
19. The Soho grinding wheel was owned by a private company, large numbers of the shares of which were owned by leading cutlery manufacturers, (e.g. Rodgers and Unwins) along with stockbrokers, file cutters etc. (S.C.L., M.D.718, Soho grinding wheel, minute book, 1853-1870).

20. P.P.1889, XIII, S.C. on Sweating, W.J.Davies, q.25286; P.P.1892, XXXVI, R.C. on Labour, W.F.Wardley, qs.19290-1, 19300; P.P.1865, XX, J.E.White's Report, para.11, (p.2); A.H.Lush, Report on Draft Regulations Proposed to be Made for Factories in Which Grinding of Metals and Racing of Grindstones is Carried on, H.M.S.O., 1909, p.3.
21. P.P.1908, Committee on the Truck Acts, 1907, J.Dodgson, q.1125;P.P.1889,XVIII, S.C. on Sweating, S.Uttley, q.24713. Also reports of fire damage in factories show that a variety of occupations were undertaken on the premises, e.g., S.I., 26.3.1892.
22. P.P.1912, II, Report of the Committee on Outworkers, W.Hobson, q.3994. It was stated to be similarly difficult to draw the line between employers and employees, and between large manufacturers and little masters, qs.4141-2, 4161, 4003, 4150-2.
23. P.P.1889,XVII, S.C.on Sweating, W.J.Davies, qs.25267-8, S.Uttley, q.24724.
24. Ibid., S.Uttley, qs.25267-8; Lloyd, pp.196-7; The Metal Worker, no.24, Dec.1908p.268.
25. Lloyd,p.191; the little master was described as a worker who, "with the aid of a little capital that he has accumulated, takes the risks of production upon himself", P.P.1908, Cost of Living of the Working Classes: Report by the Board of Trade into Working Class Rents, Housing and Retail Prices, Together with Standard Rates of Wages Prevailing in Cutlery Occupations in the Principal Industrial Towns of the U.K,1905, Cd. 3864.
26. P.P.1889,XVIII, S.C.on Sweating, S.Uttley, q.24710; The Times, 23.6.1897.
27. Ibid., S.Uttley, q.24716, G.Huskin, q.24939, C.Law,q.25067, W.J.Davies, q.25290; See note 96.
28. Ibid., S.Uttley, q.247.
29. Ibid., G.Huskin, qs.25002-4.
30. Ibid., S.Uttley, qs.24736,24854-6, W.J.Davies,q.25261, C.Law,qs.25026-7.
31. Ibid., W.J.Davies,q.25261.
32. Ibid., S.Uttley,q.24710, G.Huskin,q.24921, W.J.Davies,qs.25260-2.
33. Ibid.,W.J.Davies,qs.25281-2; P.P.1890,XV, Select Committee on the Merchandise Marks Act,(1887), C.Hobson,qs.1389-94.
34. Ibid., W.J.Davies, q . 25262.
35. Ibid., W.J.Davies, q. 25251, S.Uttley, qs.24788-9, 24726-9; P.P.1865, XX, J.E.White's Report, case 203 (p.45).
36. Ibid., W.J.Davies, qs.24761, 24721.
37. Ibid., W.J.Davies, q.25252; P.P.1912, II, Report of the Committee on Outworkers, W.Hobson, qs.4003,4141-2,4161.

38. D.Bythell, pp.17-19, 185-8.

39. P.P.1890, XV, S.C.on Merchandise Marks Act, (1887), C.Hobson, qs.1389,1503-4. P.P. 1889,XVIII, S.C.on Sweating, S.Uttley, qs.24724-5.

40. Ministry of Labour and National Service, Report by the Cutlery Wages Council, 1946, pp.9,2. The system which operated in Sheffield was in marked contrast to that in America: "The system of concentrating the business in the hands of large companies or corporations is practically universal on the American continent. Small masters are almost unknown and there is no such thing a workman hiring a room in a factory with power, and carrying on his own special business independently. There is nothing between the operative in the factory and the colossal company carried on under the principles of limited liabily", S.I., 21.10.1876.

41. See chapter 7.

42. P.P.1908, XXXIV, Report on the Fair Wages Committee, Cd .4422, G.M.Shaw q.2667, H.H.Bedford, q.5617; S.I.,26.5.1900, 18.8.1900, 20.7.1901.

43. J.H.Stainton, The Making of Sheffield, 1865-1914, Sheffield, 1924, p.11.

44. J.Rodgers, Under Five Sovereigns, pp.7,19. George Wostenholm built his Washington works in 1848, inspired by his visits to American works, but such large and impressive premises were at that time unknown in the Sheffield cutlery trades. "When it was built, it was regarded as an unnecessary extravagance, and Sheffielders of smaller vision wagged their heads solomnly and waited for the crash, which never came", J.M.Stainton, p.246; Sheffield and Rotherham Up-To-Date, pp.120-1, 124.

45. Sheffield and Rotherham Up-To-Date, p.122, weekly output amounted to 60,000 table knives and forks, 3,000 carving knives and forks, 18,000 pairs of scissors and 15,000 razors. British Association Handbook and Guide to Sheffield, Sheffield, 1910, p.241, between 1901 and 1907, Rodgers' average annual output amounted to 1,600,000 pen and pocket knives, 500,000 razors, 1,450,000 table and butchers knives, 35,000 pairs of carvers and 144,000 pairs of scissors. S.C.L., N.V.T. 6, Capital Accounts, 1879-1893, Needham, Veall and Tyzack were in possession of the following stock:

	30th Jan.1889	30th Jan.1891
finished stock of cutlery	£6404	£6166
cutlery bought in	£550	£503
cutlery in factors dept.	£688	£1110
assets and tools of cutlery workshop	£6538	£6538

The average cutlery stock of Marsh Bros. for the years 1881-4 were similar: razors £615, and table knives £1988, S.Pollard, Marsh Bros. p.45.

46. Pagé, La Coutellerie, p.1466. Thomas Turner employed 300 in 1893 and 1,000 in 1903, Handicrafts that Survive, p.12.
47. British Assocication Handbook, p.243.
48. The Institute of Metals, Souvenir Booklet, Sheffield, 1919, p.26.
49. Sheffield and Rotherham Up-To-Date, pp.140,136.
50. S.C.L., Wos.R.2 (5).
51. S.C.L., N.V.T. 11, The premises were rented for £729 p.a. in 1881. Another middle size concern was that of John Sellars, at 2,000 Square yards, Sheffield and Rotherham Up-To-Date, p.140.
52. For Example, Mappin and Webb, S.C.L., M.D.6191; Thomas Ellin, S.C.L., M.D. 1717; Needham, Veall and Tyzack, George Hides, Deakins, and Sellars; Sheffield and Rotherham Up-To-Date, pp.123-4,138,139,140.
53. For example, S.I., 15.1.1910; Rodgers, Under Five Sovereigns, p.9.
54. S.C.L., N.T.V. 11, the plans of Haywoods works include small rooms labelled, e.g. "Bedford's Hearth" and "Thompson's Hearth".
55. John Sellars acquired the table knife branch of Richard Elliott in 1890, Sheffield and Rotherham Up-To-Date, p.140, Francis Newton acquired J.Dodge in 1884, ibid., p.136. Saynor, Cooke and Ridall bought the business of Albert Hall, a former small master in 1893, for £50, S.C.L., N.T.V.7; Marsh Bros. bought the business of Luke Oakes and Co. in 1901, to produce 'Shaw' pocket knives and razors, S.C.L., Marsh,238.
56. P.P.1912, Census of Production, 1907, p.143; S.I., 1.5.1897, "As there is scarcely a retail ironmonger or jeweller who does not stock both cutlery and electroplate, it is now become almost indispensable that a manufacturer shall make both classes of goods. Proof that this position is fully recognised in Sheffield is seen in the many instances which have occurred during the last five years of silversmiths adding a cutlery department. To a lesser extent, the cutlers have commenced the manufacture of electroplate". Christopher Johnson , Letter Book, March1888-90, S.C.L., M.D.2369, 1.9.1890., "We have just gone into the plated business as a special department". S.C.L. Y.W.D.,no.938, p.23, Edward Nixon, electroplate manufacturer, sold his business and its goodwill, to Ellin and Merill, cutlery manufacturers, retaining Nixon as manager of this department.
57. Lloyd, p.343.
58. E.g. Needham,,Veall and Tyzack, Wraggs, Sheffield and Rotherham Up-To-Date,pp.126, 128; Christopher Johnson sold large quantities files, tools, shear and bar steel to Australia, Letter Books, 1875-78, 1878-80, S.C.L., M.D.2367, 2371.

59. E.g., Thomas Ellin produced more and more tools, S.C.L., M.D.1717(1-5); Marsh Bros. produced only razors in the cutlery line by 1910, concentrating on steel and files instead, British Association Handbook,p.236; S.C.L., Marsh, 103; in 1871, W.& S. Butcher produced some cutlery, but mainly steel, 1871 Circular,letter stating discounts, S.C.L., M.D. 339.

60. E.g.S.I.,21.12.1878, 13.2.1879, 15.2.1883, 15.2.1889, 4.12.1890, 16.2.1892, 3.1.1895, 4.1.1894. S.I.,18.2.1888, normal value of Rodgers' shares, 1 share = 100:

1880	1881	1882	1883	1884	1885	1886	1887	1888
252½	252½	256	277½	263	243	187	215	225

61. S.C.L., Wos.R 2(1),(2),(6)and(7); Pawson and Brailsford, 1878,p.257.

62. S.I., 14.8.1880, 28.8.1884, 14.8.1885, 14.12.1890, 6.6.1891, 16.12.1892, 4.1.1894, 3.1.1895.

64. S.C.L.,Wos.R5.

65. Needham, Veall and Tyzack, Memorandum and Articles of Association, pp.2-3.

66. S.I., 1.5.1913.

67. Implement and Machinery Review, 1.7.1882, p.4425; see appendix 2; P.P. 1865,XX, J.E. White's Report, case 206 (p.46). Most concerns in 1865, employed 10-40 workers,a"great deal" of manufacture still took place in people's homes, whilst the number of firms employing over 100 workers was "small".

68. R. Lloyd Jones and M.J. Lewis,'Industrial Structures and Firm Growth: The Sheffield Iron and Steel Industry 1880-1901',Business History,XXV,Nov. 1983.

69. Ibid., see appendix 2.

70. S. Pollard, History, p.132; Lloyd, p.192.

71. E.g. Morris and Richardson: £82 assets, £290 liabilities,S.I. 1.10.1897; Joseph Mills: £142 liabilities,S.I.,8.9.1892; even the old and notable firm of Joseph Rodgers, when it went bankrupt in 1907, had only small assets, and £3174 debts,S.I.,28.11.1907; Wm. Parkin: £1345 liabilities, £1278 assets, S.I., 28.3.1913.

72. Appendix 2, 4 limited companies were in existence 1871-84; 4 more were established 1884-1896; 23 more, 1896-1906. Amongst these were the largest and the most successful firms, many of whom produced and marketed a wide range of goods.

73. P.L.Payne,'The Emergence of the Large Scale Company in Great Britain',Economic History Review, 2nd Series,XX,1967,p.520. James Deakin & Sons took out limited liability in 1897, with £100,000 capital, and no stock offered to the public, S.I.,5.6.1897. Michael Hunters took out the same in 1903, with the management and the chairman staying as before,S.I.,3.10.1903. Marsh Bros. took out the same in 1907, the shareholders were mostly members of the family, and limited to 50 persons,S.C.L.,Marsh 86,Memorandum of Articles of Association, 20 July 1907.

74. E.g. Rodgers, Under Five Sovereigns, p.11, the major reason for "the preservation of the reputation of the firm has been the fact that there has always been a Rodgers or relative at the head of management".

75. Family and trusted managerial staff were usually majority shareholders in the new limited companies. When Wostenholms became a limited company, it was explicitly stated that there would be no changes in management, and the two managing directors, who had been with the firm for over 18 years, were retained, with George Wostenholm as chairman, S.I.,2.10.1874, 4.10.1875; Pawson and Brailsford,p.257; S.C.L.,Wos.R2(3)-(5),(23). Shares, it was sterssed, all went to "persons immediately associated with the business", S.I.,7.12.1875, 8.12.1875. The Wostenholm family were a large and ever increasing percentage of shareholders, S.C.L.,Wos.R.2(23),(27),(32). At Rodgers too, the directors and board members of the limited company, who were continually reelected, were the same men who had occupied the positions before 1871, S.I.,16.2.1882, 15.2.1883. Here too, shares were "privately subscribed within a few hours", Under five Sovereigns, p.9.

76. See chapter 3.

77. D.Bythell, pp.194-99.

78. Ibid.; G.Steadman Jones, Outcast London, p.25; R.Samuel, pp.54-5; John Blyde & Co., 1902 Price List for Table Cutlery; Christopher Johnson, Pattern Book for Cutlery,1880, Price Lists,1892,1899, patterns and prices,1873; Needham Veall and Tyzack, Pyramid Pattern Book,1862-1918,S.C.L.,N.V.T.3.

79. P.P. 1912,II,Report of the Committee on Outworkers,W.Hobson,qs.4222,4229; P.P. 1908,III,Committee on the Truck Acts,1907,A.J.Hobson,q.12395; P.P.1908.XXXVI,Report of the Fair Wages Committee,Cd.4422,A.J.Hobson,q.5613; Ministry of Labour and NationalService,Report of the Cutlery Wages Council,1946,p.9.

80. E.g. steel carving forks, Webb Mss.,p.176.

81. E.g. Marsh Bros. supplied steel to Birkenhead Bros., who used it to supply Marsh Bros. with carving tools in 1899, S.C.L.,Marsh 81; in the 1890s, Marsh Bros. also subcontracted their razor production to Pickfords, S.Pollard, Marsh Bros., p.49; H.C.Baker and S.Mitchell,p.45.

82. R.J.Islip,'A Future for the Past in Sheffield?',Yorkshire Architect, May/June 1978; G.P.Jones and H.Townsend,'The Rise and Present Prospects of the Sheffield Cutlery Trades', National Westminster Bank Review, Nov. 1952, pp.1-4.

82. D.Bythell, p.136; S.Pollard, History,p.54-5; S.Pollard, Marsh Bros.,pp.35-6; P.P. 1908,III, Committee on the Truck Acts,1907, A,J,Hobson,q. 12422; P.P. 1912, II Report of the Committee on Outworkers, W.Hobson,q.4030;. the Ironmonger,

29.4.1871, quoted a Boston Trade paper, which pointed out that the overheads of American cutlery firms could amount to 25% of the cost of the finished piece of cutlery.

84. P.P. 1908,III, Committee on the Truck Acts, 1907, A.J.Hobson,qs.12455-61, 12423; P.P. 1912,II, Report of the Committee on Outworkers, W.Hobson,qs.4042,4050.

85. P.P. 1908,III, Committee on the Truck Acts, 1907, A.J.Hobson,q. 12422.

86. Chamber of Commerce Minutes, 1870, S.C.L. L.D.1986/1; Industries of Sheffield, pp.32,81; P.P. 1865,XX, J.E. White's Report, case 201 (p.44); P.P. 1912, II Report of the Committee on Outworkers, W.Hobson,q.4030.

87. D.Bythell,pp.175-9; R.Samuel,pp.45-7.

88. Lloyd, p.192.

89. P.P. 1889,XIII, Select Committee on Sweating, W.J. Davis,q.25345. Circumstances were much the same in 1960:"This is a typical success story of the cutlery industry - the man who learns his trade as an employee, moves on to start his own business working by himself or with a few helpers, and gradually builds up from these small beginnings until he can devote his entire time to management and administration,and leave the production work to his employees," H.C.Baker and S.Mitchell, p.48. See also Working Party Reports, Cutlery, 1947,p.3.

90. P.P. 1908,III, Committee on the Truck Acts, 1907, A.J.Hobson,q.12477,"Sheffield trade remains a handicraft trade, and it is in that respect unique in the whole of the country.I know no other trade in which the same thing applies." Ibid., q.12478, "It is really the handicraft nature of the trade that raises this difficulty, as to what you are going to do with an old established handicraft and its customs." P.P. 1892,XXXVI, R.C. on Labour, R.Holmshaw,q. 19548.

91. P.P. 1908,III,Committee on the Truck Acts, 1907, R.Holmshaw,q.12051.

92. P.P. 1912,II,Report of the Committee on Outworkers,W.Hobson, qs.4228-9.

93. P.P. 1908,III,Committee on the Truck Acts, 1907, J.Dodgson,q.989.

94. Ibid., qs. 1055,1059.

95. J.Benson, The Penny Capitalists: A Study of 19th Century Working Class Entrepreneurs, London,1983,pp.48-9, 137-8; Lloyd, p.193.

96. P.P. 1908,III, Committee on the Truck Acts, 1907, J.Dodgson, q.1006; P.P. 1892,XXXVI,R.C. on Labour, A.Fretwell, q.19691, small masters were often those "who have lost their situations in some circumstances, and have set up themselves in business by getting a small amount of money in some cases, and in some they go and get materials on credit."

97. See chapter 6, 185-7.

98. P.P. 1890,XV, S.C. on the Merchandise Marks Act(1887), C.Hobson, qs.1504, 1503.

99. Ibid., qs. 1504,1509, 1512, 1527; S.I., 6.5.1890.

100.P.P. 1892,XXXVI, R.C. on Labour, R.Holmshaw,qs.19845-7; Webb Mss., pp.201,278.

101.P.P. 1890,XV, S.C. on the Merchandise Marks Act (1887), C.Hobson,q.1389; P.P. 1892,XXXVI, R.C. on Labour, R.Holmshaw, qs.19801-3.

102.E.g., S.I., 6.5.1890.

103.P.P. 1892,XXXVI, R.C.on Labour, A.Fretwell, q.19639; P.P. 1910,VIII, R.C. on the Poor Laws, A.J.Hobson,qs. 88381-2; P.P. 1889,XIII, S.C. on the Sweating System, W.J.Davis,q.25260.

104.Ibid., A.Fretwell, qs. 19699-704, 19728-41, a little master would receive work at 2s. per dozen items, and sublet it at 1s. 8d.

105.P.P. 1910,VIII, R.C. on the Poor Laws, A.J.Hobson, q.88386; P.P. 1912,II, Report of the Committee on Outworkers,W.Hobson,qs.4118-9. See also, J.Lynch, 'Skilled and Unskilled Labour in the Shipbuilding Trades', Industrial Remunerations Conference, 1885, pp. 114-8, ship platers and their assistants: the former were paid piece rates,but they paid their assistants datal rates, thus being in the position of "taskmaster and serf", p.114.

106.R.Samuel, p.51.

107.P.P. 1889,XIII, S.C. on the Sweating System, S.Uttley,qs.24841-47; P.P. 1892,XXXVI, R.C.on Labour, W.F.Wardley,q.19294; chapter 2, pp. 2, 37-43,51-9.

108.Pawson and Brailsford,pp.249-50.

109.P.P. 1889,XIII, S.C. on the Sweating System, S.Uttley, qs.24840, 24837; G.Huskin,q.24986; C.Law,q.25047.

110.S.I.,2.4.1881.

111.Pawson and Brailsford,pp.250-4; S.I.,2.4.1881; P.P. 1889,XIII, S.C. on the Sweating System,S.Uttley, qs. 24767-79.

112.P.P. 1889,XIII, S.C. on the Sweating System, S.Uttley,qs.24839-47, 24861, W.Davis, qs.25346-7, C.law, q.25048; P.P. 1886,XXI, R.C. on the Depression,S.Uttley,q.1218; P.P. 1910,VIII, R.C. on the Poor Laws, A.J.Hobson, q.88385; XVI, Report by A.D.Steel-Maitland, appendix XXXVI, pp.335-7

113.R.Samuel,pp.17,58; D.Bythell, pp.69-70; J.Schmiechen, Sweated Industries and Sweated Labour: The London Clothing Trades, London,1984,p.2.

114.P.P. 1910,VIII,R.C. on the Poor Laws, A.J.Hobson, qs. 88381-6.

115.See appendices 1 and 5.

116.P.P. 1892,XXXVI, R.C. on Labour,A.Fretwell, qs.19796-800.

117.Ibib., 19788-95; P.P. 1889,XIII, S.C. on the Sweating System,C.Law, q.25032, W.Davis, q.25406.

118.P.P. 1892,XXXVI, R.C. on Labour, A.Fretwell,qs.19808-11; Cutlers' Company

Industrial Exhibition, July 1885, Catalogue. The classes of work which were to be examined were extremely specific, e.g., grinding of flat tang razor blades. Despite the skills of the workmen who would exhibit in this show, very few entrants entered more than one class, demonstrating the highly specific nature of these craftsmen's skills.

119.For details, see appendix 5, and chapter 5. Webb Mss., p.145, table knife grinders who worked on high quality 'country' goods, for the U.K. market, earned 27s. per week, but those who worked on 'foreign' goods earned only 21s. The Wadsley spring knife cutlers, who were the most 'sweated' of all the cutlery workers, had been subject to wage reductions of over 40%, 1874-89, P.P. 1889,XIII, S.C. on the Sweating System, W.J.Davis,qs.25286-7, 25301.

120.S.I., 23.3.1889, 16.3.1889. Witnesses from the cutlery trades who appeared before the Select Committee on the Sweating System, detailed many cases of overwork and underpayment in these trades. Attention focused particularly on an elderly but 'respectable' pocket blade grinder who, despite his hard work, had died of malnutrition, P.P. 1889,XIII,S.C. on the Sweating System, W.J.Davis,q.25315, G.Huskin,q. 24951, C.Law,qs.25011-23.

121.S.I.,27.3.1889.

122.P.P.,1892,XXXVI, R.C. on Labour, A.Fretwell, q.19639; Lloyd, pp.195-6.

123.P.P. 1889,XIII, S.C. on the Sweating System, W.J.Davis,q.25289, S.Uttley,q.24717.

124.P.P. 1886,XXI, R.C. on the Depression, C.Belk, q.2659. See chapter 2.

125.P.P. 1910,VIII,R.C. on the Poor Laws, A.J.Hobson,q.88384. For details see chapter 6.

126.S.I.,17.2.1872, "One of the serious difficulties in the cutlery trade is this: that in quiet times, merchants are able to barter down the 'little mesters'... almost to starvation prices, and thus compete on most unfair terms with the larger employers, who continue to pay ordinary prices. It often happens indeed, that in bad times, manufacturers can buy certain quantities of cutlery well madeand finished, for less than they can make them, and are driven by the stresses of competition to that course." S.I.,27.3.1889, 30.3.1889. P.P. 1889,XIII,S.C. on the Sweating System, W.J.Davis,qs.25354-6; P.P. 1910,VIII,R.C. on the Poor Laws, A.J.Hobson,q.88384; P.P. 1912,II,Report of the Committee on Outworkers, W.Hobson,q.4229.

127.E.g.,S.I.,17.2.1872; see chapter 6.

128.D.Bythell,pp.155-6; S.I.,30.8.1876, a manager at Nowills, who had been with the firm for 21 years, embezzeled considerable sums of money by paying out for work completed,to invented outworkers. S.I., 6.7.1877, a manager at Mappins stole

cutlery and pawned it, instead of handing it to outworkers. S.I.,11.10.1873, manufacturers complained that men took away work, but on finding better employment elsewhere,did not bother to complete or bring back the first work. Thefts from company warehouses by employees or ex-employees were common, S.I.,19.7.1879,12.5.1880, 8.7.1885, 14.4.1887, 8.9.1888. Thefts were also common of unfinished goods which workmen hoped to complete and then to sell on, S.I., 21.2.1870, 22.4.1871, 13.2.1880, The Ironmonger,11.1.1890,p.50.

129.S.I.,11.10.1873.

130.S.Pollard, Marsh Bros., p.36.

E.g., the costs of government contract work were often reduced in this way, P.P. 1908,XXXIV,Fair Wages Committee,W.Crofts,q.2826; P.P.1897,X, S.C. on Government Contracts(Fair Wages Resolution), S.Uttley,q.1716. See chapter 4,pp. .

131.See chapter 6.

132.P.P.1889,XIII, S.C. on the Sweating System, W.J.Davis, qs.25415,25326,25385; J.Benson, Penny Capitalists, pp.48-9; J.Schmiechen,Sweated Industries, p.131; S.I.,4.10.1873.

133.W.Garside and H.F.Gospel, 'Employers and Managers: Their Organizational Structure and Changing Industrial Strategies', in C.Wrigley(ed.), A History of Industrial Relations, Brighton,1982,p.101; C.Littler,'Deskilling and the Changing Structures of Control', in S.Wood(ed.), The Degradation of Work? Skill, Deskilling and the Labour Process, London, 1982,pp.124-5; S.Pollard,'Factory Discipline in the Industrial Revolution', Economic History Review', 2nd. Series, XVI, 1963-4.

1. Scissor Grinding,c.1900

2. Forging Table Knife Blades,
Needham, Veall and Tyzack, c.1900

5. Hammering Cutlery,Needham Veall and Tyzack, c.1900

6. Table Knife Cutlers' Shop, c.1910

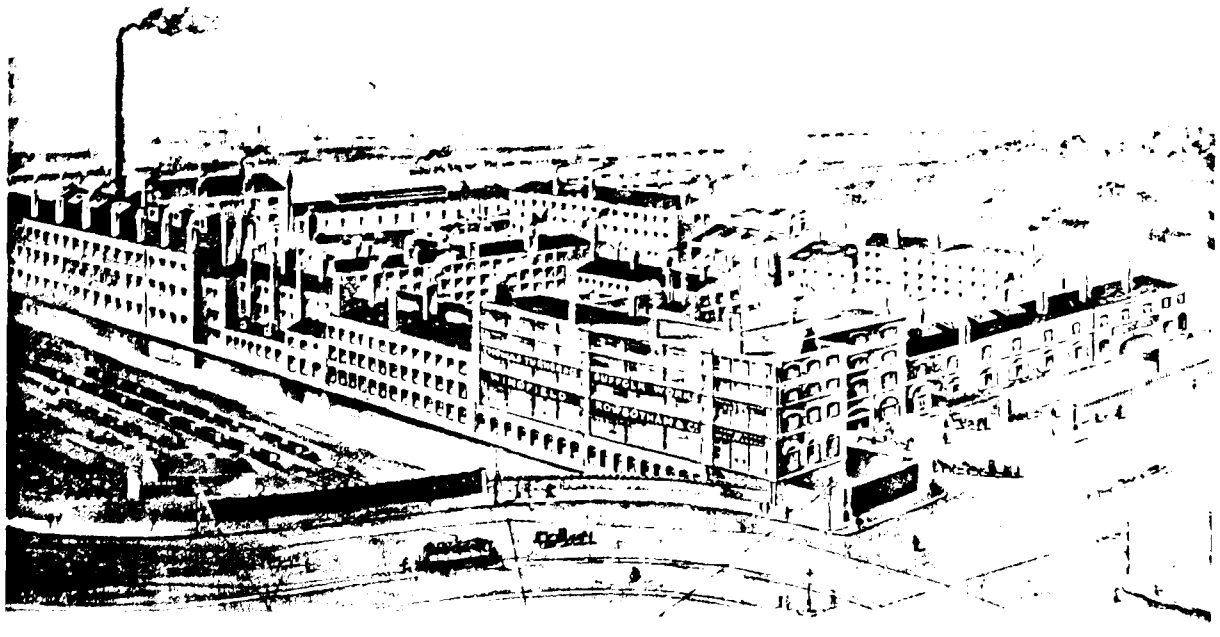
7. Scissor Grinding, Carver Street, 15.7.1969

8. Packing Pen Knives, n.d.

9. Packing, n.d.

10. George Butler & Co., Range of Workshops, Central Yard, Trinity Works, 1897

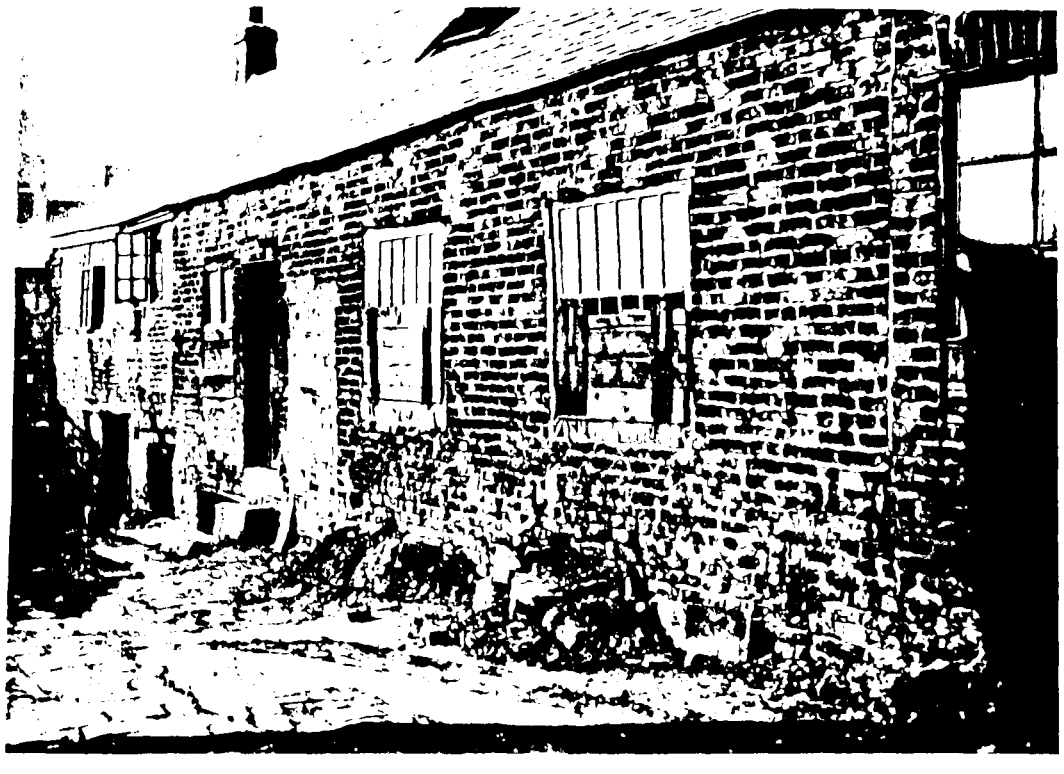
11. Thomas Turner & Co. and Wingfield Rowbotham & Co., Suffolk Works



12. Hafters' Workshop, off Solly Street, 1969

13. Forgers' Shop, Court 5, Garden Street, 1969

14. Forgers' Shop, Carver Street,[n.d.]



CHAPTER 5 TRADE SOCIETIES: ORGANIZATION, MEMBERSHIP AND STABILITY

Although the small-scale and endemic sectionalism of the cutlery unions came to be recognised as a major handicap to their bargaining power, and attempts were made to rectify this, the unions continued to be weak and unstable. Not only were there separate unions for men working on different products, and the different processes involved in their production, but further fragmentation related to the separate skill hierarchies of the various trades, and social status based on independent production and the small-scale employment of labour. Most trades were still pervaded by traditional values and understandings, rooted in past experiences of skilled production and craft regulation; this was the mentality of the skilled craftsmen who still dominated their organization. Customary organizational techniques, based on a closeknit community of artisans remained reasonably viable and successful before 1890. After that date however, with the growing use of machinery and cost cutting techniques, based on the subdivision of labour, such traditional methods of organization became increasingly out of touch with the declining status, wages and power of even the most skilled workers. Whilst the societies did attempt to alter their organization to cope with the new conditions, the abandonment of old beliefs and craft jealousies proved to be both a difficult and slow process.

As in the period before 1870, there continued to be more than fourteen cutlery societies, each serving a particular craft or occupational group. The forgers and grinders, less affected by the competition of mechanized techniques and unskilled labour, remained the strongest.[1] However, all societies had only a small potential membership, and were dependent on good trade for the recruitment of a large percentage of this number. Most societies reemerged in the good trade of 1870-2, generally collapsing again before the late 1870s, with the exception of those that served the most skilled workers.[2] Low wages and frequent underemployment were a major handicap to recruitment: in 1885 the Master Cutler commented that "the trade unions are not at all in a flourishing condition in Sheffield, at the present time...many of them have

simply died of inanition owing to the inability of the workmen to pay the requisite subscriptions".[3] Even at the height of a trade boom, when some societies could count on the membership of virtually all workers in the trade, the unions were small: the spring knife cutlers, one of the largest branches, had 900 members in 1872,[4] whilst the table blade grinders' society contained 675 out of a possible 700 grinders in 1881.[5] However, on the return to less prosperous trade, collapse was equally rapid: the scissor grinders' society had only 240 members in the early 1870s and only 20 by 1877.[6]

Organization, when it attempted to be 'modern' and efficient, was generally over-ambitious and idealistic about possible benefits and contributions, failing to plan ahead to periods of poorer trade. Typically, societies would raise considerable sums of money in prosperous periods, but would lose everything on the return to poor trade.[7] The spring knife cutlers' society was typical of this ambition which could not be maintained in practice. In the euphoria of 1872, balance sheets were issued to members, indicating the unions financial position,[8] and new rules were drawn up. It was stipulated that a committee of sixteen, plus a president, vice-president, secretary and treasurer should meet weekly, whilst general meetings were to be held quarterly.[9] Contributions were set at 3d. per week for men, 1½d. for boys, plus a 2d. membership fee. Benefits for disputes, although payable only when the society had over £1,000 of funds, were high: 10d. for a man, 3d. for his wife and 1d. for each child, per week.[10] An optional funeral society was also established, and the union registered under the 1871 Trade Union Act.[11] Nevertheless, just five years later, it was in collapse.[12]

In the earlier part of this period however, most societies clung to far more traditional methods of organization, particularly if, unlike the spring knife cutlers, they were still quite skilled and commensurately powerful. Their policies and ideals were well - illustrated in the evidence given before the Royal Commission of 1867[13] which investigated instances of violence used by the Sheffield trade societies to enforce their regulations on recalcitrant members. These methods of enforcement, known as 'ratting' frequently involved non-violent intimidation, such as the removal of, or minor damage to the

equipment of a man who had transgressed union rules. Failures to heed such persuasion, and anonymous letters of warning signed 'Mary Ann', led to more violent action: a Royal Commission was called when loss of life resulted. However, this period was regarded by the trade societies as halcyon days, the policies and methods of which would be abandoned only slowly and reluctantly, despite their increasing outmodedness.

The Royal Commission revealed the extremely close relationship between work and home life: "the overlap between workplace and household was exceptionally great, producing exceptionally strong control by local community over its members. Norms of masculinity within and outside the household must have been strengthened by the dominant position in the local industry of the artisan, controlling his labour and skills, in conjunction with his fellows".[14] The strength of the craft unions lay partly in their ability to express these neighbourhood solidarities. Members would know the names and situations of all the other members of their trade,[15] whilst the force of group psychology played an important role. 'The trade' completely dominated artisans' lives: "they had a very clear consciousness of 'the trade' as almost a physical entity within which they worked",[16] and it could not be escaped by simply leaving the union. In the 1860s the cutlery trades were socially homogeneous containing mainly skilled workers, who wholeheartedly supported the union leadership, and who were, as yet, experiencing very little foreign competition. The artisan still had a fairly complete monopoly of skills on which his traditional modes of defending his trade were dependent: technical progress, once it made major inroads, would make such policies hopeless.[17]

All sober, skilled men were members, and the commissioners appeared to agree with the union leaders that non-unionists were often drunken, irresponsible workmen who could not afford union subscriptions because of their unsteady habits.[18] The payment of contributions, restriction of hours and numbers of apprentices, the maintainance 'on the box' of the unemployed to stop them accepting lower wages and thus bringing down the general wage rates,[19] were all reliant not only upon the non-use of machinery and a numercially stable workforce, but a total moral commitment of all workers to the ideals and policies of the union.[20]

Those who unbalanced the system injured the whole of the trade and were both selfish and immoral. Thus ratting was acceptable because, having disregarded the moral pressure and arguments given by union officials,[21] and continued in their offences, culprits were unbalancing a system which entailed negative moral, social and financial consequences for the majority.

The unions remained attached to the guild-like philosophy which made them aware of, and feel some corporate responsibility for the progress and content of the trade as a whole and in a wider sense. They were grieved that the Cutlers' Company no longer fulfilled this function (of restricting numbers, checking quality and generally regulating the trades) particularly after the repeal of the Combination Acts in 1814, after which anyone was allowed to enter the Hallamshire trades. "The unions never accepted this decision. Again and again they tried to recombine with their masters in a guild-like oganization. Again and again they declared themselves to be the rightful heirs to the guilds' power".[22] Conciliation and co-operation with employers was always preferred to offensive action.[23]

However, the unions, and their officials in particular, in 'rattening' wrong doers, and then denying it, demonstrated their distance from accepted middle-class values, and the psychological gap that separated them from the commissioners, and even organized labour in many other parts of the country. Whilst nationally, trade unions were fighting for their right to continued existence in 1867, the Sheffield cutlery trades, illustrating their mental isolation, were demanding the right to the legal enforcement of their restrictive practices.[24] This would dispense with the need for rattening, but also circumvent the growing organizational problems caused by the increase in the use of a number of unskilled workers who expanded the labour force and brought down the level of wages and skill.

Although the use of machinery was increasing in the early part of this period, along with deskilling and team work, in many of the cutlery trades, these forces were not yet sufficiently strong[25] to force any major revision of traditional goals and policies. Most importantly, the trades were still dominated by a body of genuinely skilled men, who earned higher wages, possessed greater independence

and discretion over their work habits, and whose skill was necessary to produce the highest quality goods.[26] These skills had been learnt through long apprenticeship, and would, it was hoped, open up the door to employer, or at least independent status.[27] They believed that their skills conferred on them the right to set their own pace of work and to shape the character of their labour at the point of production.[28] Whilst fluctuating trade and mechanization had a tendancy to decrease the line of demarcation between skilled and less skilled, and no 'gulf' separated the two, the skilled still tended to view their less skilled workmates as "degraded serfs",[29] with no understanding of, or share in the heritage, ideals and experiences which coloured their understanding of the trade. Their policies and attitudes were a direct product of their past.[30] Their attitudes were exclusive and assumed that they had skills and values to defend against outsiders.

Sectional craft interests still dominated. One branch of a trade would very rarely help another branch of the same trade in a dispute: Forgers and grinders usually felt cutlers to be beneath them.[31] Indeed, the policy of one branch could cause direct problems for another: when the forgers struck, the grinders and hafters soon became very short of work.[32] Co-operation rarely went beyond mutual expressions of support on safe and traditional issues.[33]

The abandonment of sectionalism resulting from the fairly rigid skill hierarchies within each trade was equally slow to die before 1890. Solidarity was possible between forgers and their strikers, but largely because both were skilled, apprenticed occupations.[34] Unity was sometimes possible in an attempt to combat chronic general weaknesses - as for example when the steel fork makers and grinders society (which included grinders, forgers and small masters and was the only composite labour organization in the trades) was set up in an attempt to improve the dreadful conditions in the trade and fight against the common enemy - the table knife manufacturers who bought the forks.[35]

More often however, elitism was still the order of the day. Exclusive policies were operated by societies which were still quite secure in their skilled status: the pen and pocket blade forgers after attempts to incorporate the machine-operating fly blade smithers in the good trade of 1872, excluded them once more on the return to

poorer trade, to the annoyance of some society members.[36] The president however, believed that the union "had become a failure because it included a class of persons who had never been considered in the trade as pocket blade forgers. There was a species of work known as fly blade smithing, but it had never been considered as part of the work done by the pen and pocket knife forgers".[37] The razor grinders, another strong and secure union, as yet little affected by mechanization was similarly disparaging about its less skilled workers. Its president felt that there were three types of work and men: the best, which "requires great skill and patience, and only steady industrious men"; the middle class, whose practitioners were generally "industrious and frugal , and "the common trash", worked upon by men who "seem really a distinct body, and could not ... do better work if they tried...they are poorly paid, live in wretched houses, are improvident, and are barely recognised as belonging to the trade"[38]

The weaker cutlers'unions also attempted to implement exclusive poicies against their less skilled members, in an attempt to strengthen their relative position. The spring knife cutlers excluded all hired men from their society because, being bound by a legal contract to the same wage rate for a set period, they could not seek advances. A hired man was "a mere machine, having no control over any action beyond the terms of his agreement, having a body which is virtually anothers".[39] Moreover, such men brought down general wage rates and gave their emloyer an advantage over those who paid more. Thus many believed that the trade should be separated into two distinct groups with distinct societies: those that worked on high quality goods, and those who worked on inferior goods.[40] Throughout, the tone of the debate was deeply moral: hired men lost their self-respect as the system pauperized and degraded them.[41] Similarly, the weak table and butchers'knife hafters excluded from their society those who worked on common 'shell bolster hafting' because the work was poorly paid, limited normally to deskilled teams, and involved a substance which caused diseases in the hands, thus making its workers more likely to claim sick benefits.[42]

Traditional exclusive policies and restrictive practices were also still evident in the unions' attempts to restrict supplies of labour. Before 1890, the absence of any major technical developments meant that there were few jobs which were judged to be sufficiently light and simple to be given to female workers.[43] Their employment,

largely through trade union pressure, was limited to a few specific jobs: mainly warehouse work and packaging which was non-competitive with men's work, as was the 'common filing ' of scissors, their dressing and burnishing.[44] But even amongst the women there was a certain snobbish elitism: warehouse girls felt themselves to be far superior to buffer girls whose trade was said to be 'low class' and 'dirty'. Thus "This element of caste enters largely into the life of the factory worker, much more so indeed amongst the females than amongst the men... A warehouse girl would on no account associate with a buffer, and on the other hand, a buffer would not expect to acclaim the acquaintance of a warehouse worker".[45]

A further facet of these methods of restricting the supply of labour, were the attempts made to assist workers who wanted to emigrate. In the depression of1879, a society was estabished for this purpose,[46] whilst several men were given financial assistance by their individual trade societies, to help them to emigrate to America.[47]

However, the main thrust of these efforts focused on the enforcment of traditional apprenticeship regulations. In 1890 almost every trade society still technically insisted upon the observance of apprenticeship rules. The normal format of these regulations stipulated that apprentices could only be taken on by workmen over 28 years of age, that only one apprentice was to be taken at a time, and that he should be the son of a society member.[48] Under formal, bound apprenticeship indentures, boys were bound for seven years, until they were 21 years old, but many began their apprenticeship as early as nine years of age.[49] Whilst many unions were incapable of enforcing these regulations, some of the stronger ones were still ready and able to insist on their observance.[50] In the 1880s, the scissor grinders' union forced between 70 and 80 boys to leave the trade, refusing to allow their return, even once trade had improved.[51] By 1871 it was reported that "the number of men is now so limited that their services are too much in request for their demands to be long or generally resisted".[52]

The unions, however, insisted that any decline in numbers was the result not of their policies, but the general erosion of the status, standards of living and prospects of the workers in these trades, which made them an unattractive proposition to potential recruits.[53]

Moreover, the tendency was already growing for team leaders to employ a number of apprentices on specific, highly subdivided tasks, using them as cheap labour, rather than attempting to give the all-round training which would create a craftsman.[54] Thus the quality of production would eventually decline, due to the dearth of suitably qualified artisans.[55] Moreover, the release onto the labour market of these semi-skilled youths, increased competition for work, brought down wages, and forced such poorly trained men to work permanently in teams. Amongst trade unionists, the link between the problems of declining apprenticeship, subcontracting and deskilling, was clearly drawn.[56]

The increasing inability of unions to enforce meaningful apprenticeship is also evidenced by their plans to restore the prestige of formal apprenticeship, through recourse to examinations to check an apprentice's progress, and court action against masters who failed to provide adequate tuition.[57] Recognising that they no longer possessed sufficient powers of enforcement, unions even demanded government intervention, in the form of legislation to further reduce the employment of children, by raising the minimum age of workers in grinding wheels from thirteen to fourteen years.[58]

Success in enforcing such limitations was, to a considerable extent, dependent upon societies' retention of close-knit relations and their ability to enforce other powers of censure, particularly rattening. The deep-rooted nature of these practices and their continued viability in the early part of this period, is illustrated by their frequent occurrence, despite the Royal Commission aimed at their prevention.[59] Men were rattened for a variety of offences: because they accepted work at wages which fell below the standard rate,[60] or employed too many boys,[61] left the union,[62] refused to give wage increases,[63] or even for lending their tools to blacklegs.[64] Such action was possible in small, close communities, where respect for artisanal values remained the norm, and in which workmen knew everything about their fellows.[65]

That significant changes in attitudes towards organization did occur at the end of this period, was largely the result of the general decline in wages and status of all workers, as the trades became increasingly subdivided and deskilled. In such an enviroment, the old style elitism and pride of the skilled craftsman and the resultant

organizational policy were both misplaced and ineffective. Although union leaders constantly reiterated that their trades required enormous skill, they also began to understand and recognise publicly that their wages and status were closer to those of unskilled, casual labourers.[66] As in the national labour movement, the cutlery unions came to realize that they could not simply ignore the sweated, deskilled sectors of their workforces, once the presence of these workers began to pull down everyone's wage rates.[67] Thus inclusion rather than exclusion of less skilled workers came to be the dominant organizational issue.

Nevertheless, little practical was attempted until 1909, when stimulus was given by the good trade which accompanied the period before the First World War, and pressure from Charles Hobson of the Britannia Metalsmiths and Federated Metal Trades Association. He pointed out the stupidity and wastefulness of the separation of skilled and less skilled workers, "Although they produce precisely the same article by another process, and for that reason only, there is the greatest antipathy between the two sections of the workmen, although they might work for the same firm".[68] They would be better advised to "get the displaced handworker employed on the machines, this being done, you lessen the number of unemployed, and prevent a large influx into the trade".[69]

As with general organizatioal advances, inclusive policies could only be successfully pursued when good trade allowed subscriptions to be afforded and demands for wage advances to be readily met. Thus the table and butchers' knife grinders incorporated the datal workers in their trade in 1911,[70] and gave the goff blade grinders considerable help in forming a union and enforcing a new price list.[71] Similarly, the pen and pocket knife forgers helped the smithers to form a union which, once well organized, they incorporated into their own society, along with hardeners and makers, although these men were not allowed out of work benefits.[72] The table blade forgers gave goff blade forgers similar assistance.[73] Whenever trade improved, all societies made concerted efforts at outreach and propaganda campaigns which would encourage new members to join. However, such action was recognized to be useless when trade was poor.[74] Membership figures revived enormously with the prosperity of the early 1890s, fell back

in 1893-5, to peak again in 1896-1900, and 1910-13.[75] Membership was lower in 1910 than in 1891, but it had advanced enormously by 1913.[76] The table knife hafters society for example, comprised 70% of all hafters in 1913, and was pressing for all to join.[77]

Throughout this later period, societies had a far more stable existence than previously: only two did not have a continuous existence between 1890 and 1914.[78] Organization however, changed markedly, as the close-knit, fraternal relations where replaced by those of a strictly practical, procedural nature. Whilst attempts were made to restore such communal values by the arrangement of various social gatherings and whist drives,[79] rank and file participation in union activities waned. A large turnout at meetings could be assured only at the peak of a period of industrial militancy.[80] Consequently, rattening was said to have died out by 1889,[81] and other traditional modes of organization and rules of enforcement became impractical as the tight-knit fabric of, and skill levels within the old societies declined.

Apprenticeship was broadly recognised to be a thing of the past. Its decline accompanied the increasing acknowledgement that the trades were becoming low status, low paid, unhealthy occupations which so few apprentices were will ing to enter, that regulation became unnecessary.[82] By 1913 it was reported that " no man outside a lunatic asylum would think of putting his lad into a trade in which after several years training he can only make 26 or 27s. a week; it is moreover, a notoriously unhealthy trade".[83]

Even manufacturers acknowledged that proper apprenticeship was all but dead. "The training of boys or young men who are put to a skilled trade is of a very imperfect nature, with the result that when they cease to be profitable at boys' wages, in doing some small repetitious operation, because they have grown up to desire a mans' wage, they are very often ill-trained, or only partially trained to act as independent workmen...these badly trained men swell the number of unemployed, whenever trade is not at its very best".[84] Team masters deliberately avoided teaching their lads all-round skills, as this would merely slow down production and defeat the object of the team system.[85] Teams were therefore found in the branches of the industry in which mechanization and deskilling had already progressed the furthest - particularly amongst cutlers and hafters.[86] However,

observers were ready to apportion some of the responsibility for these problems with the boys themselves: many left their apprenticeship as soon as they were partially trained, in order to earn slightly better wages in a team; others were forced into such action by the needs of their 'improvident' parents.[87] The increasing reliance of the unions on government assisted technical education as a means of training boys, has been interpreted as further evidence of their inability to enforce their traditional restrictive practices.[88]

Whilst a decline in the ability to effectively enforce apprenticeship regulations is indisputable, the continuing power and ambitions of the stronger unions should not be understated. It is now recognised that contemporary commentators tended to exaggerate the decline of apprenticeship in British industry generally. The decline in formal indentured apprenticeship or learnership was acknowledged, but inadequate attention was given to the skills which could be acquired through less formal training over a long period, through migration, following up, and picking up a trade.[89] Whilst the acquisition of skills in the cutlery trade became less closed, and the abilities involved became narrower, considerable experience and ability were still necessary in this industry which continued to rely upon its reputation for the finest quality wares.

Moreover, apprenticeship regulations were still nominally reiterated and enforced by most societies until 1914,[90] and although ignored by most, some unions continued to sucessfully enforce them, when good trade permitted.[91] Thus, even if the power of enforcement became less reliable, the desire to restrict the suppy of labour to the trades by apprenticeship, was still strong in 1914.

In their attempts to limit the domain of the growing number of female cutlery workers, the unions' success was similarly limited. There was little objection to the employment of women in warehouse and packing work, or in the scissor trades.[92] In such branches, a manufacturer stated that "the employment of women goes back as far as my memory goes back; and I should very much doubt whether the workmen in the district wish in any way to interfere with the employment of women, or to restrict it".[93] However, the number of poorly paid female workers, particularly young, unmarried women, was increasing rapidly,[94] as work was subdivided, and the lightest tasks given to women.

The cutlery unions were unwilling to organize the women, or admit them into their societies.[95] Objections to the employment of women were based not only on the fact that their competition reduced wage rates, but on 'moral' grounds too: the work was unsuitable because it was "dirty" and "not at all healthy", and it was "not at all suitable for women to be kept at work in a shop".[96] The Women's Trade Union League did however campaign in Sheffield in 1910, and in 1912, the I.L.P. assisted in the formation of the Sheffield Women Workers' Organization Committee.[97] The S.F.T.C. also attempted to assist in the creation of women's trade unions,[98] Charles Hobson once more leading the cammpaign to highlight the plight of female cutlery workers.[99] Although nothing was achieved which assisted the organization of women in any tangible way, employers continued to insist that it was trade union hostility which prevented the employment of women in many branches of work in which their labour could be, and was in Germany, used.[100]

Thus, if traditional artisanal ties and skills could no longer be relied upon to bind the men together and improve their bargaining position, these unions were forced to, and to some extent successful in their shift to more modern, technical and methodical forms of organization. Although the continued separate existence of small societies caused wastage of resources and efficiency, their committees did become more representative and their officials more experienced. Significant efforts were made to ensure that committees represented all the men in a trade,[101] and committee members were paid small sums to collect the men's weekly subscriptions.[102] Meetings were generally held weekly (although sometimes fortnightly or monthly) at pubs in the centre of Sheffield.[103] Most societies had a president and a secretary (who often became permanent, salaried officials over this period)[104] as well as a vice-president and treasurer. The exceptionally long service and constancy of these officials helped the overall stability of the unions, whilst their prestige was augmented by the respectability and civic standing of their leadership.[105]

Printed rules were revised and updated in periods of good trade when the unions became more active,[106] and funds became more realistically and carefully managed. Contributions remained at around 1s. per week for a man and 6d. for a boy, and benefits could be claimed from between 26 and 52 weeks after joining the society.[107] However,

contributions and benefits were often suspended when trade was poor, and compromises reached over bad debts,[108] whilst funds were sometimes further protected by the awarding of lesser benefits to less skilled members.[109] Unemployment benefit was generally 8 to 10s. per week for a man, 2-5s. for his wife, and 1-1½s. for each of his children, for between eight and thirteen weeks.[110] Total unemployment was however, very rare and consequently unemployment benefit was seldom awarded: of the 2233 members of cutlery and file making societies who returned questionaires to the S.F.T.C. in 1908, only two men were paid unemployment benefit, whilst 491 were on short time.[111] Several societies paid no unemployment benefit at all,[112] whilst others would only pay when their funds exceeded a certain value.[113] Societies became equally careful in their payment of sickness and funeral benefits, realizing that their small, poor membership could not furnish extravagent benefits. In 1891 few societies gave sickness or funeral benefits, and those that did paid out only small sums from their ordinary funds.[114] By 1911, most societies were still providing sickness and funeral benifits out of ordinary contributions,[115] but additional restrictions were steadily placed upon claims, until only tiny sums were paid out.[116] Not surprisingly, in view of their own inadequacies, the cutlery societies and the S.F.T.C. of which they were members, were strongly in favour of government sponsored sickness and insurance schemes.[117] The significant sums which were expended as strike pay, during the few major, large-scale disputes of this period, were generally covered by special levies.[118] Improved financial management was also evidenced by the investment of funds in interest accruing concerns[119] and in co-operative societies, although the latter was largely a hangover from older, more traditional modes of improving the bargaining position of their workers. A Cutlery Co-operative Production Society was formed by spring knife workers in 1866, and in 1873 a scissor trade producers co-operative was established, which by 1891 had sales of over £2,000 per year, chiefly to other co-operative societies.[120] As a source of sound investment, the value of such co-operatives was more dubious: by 1908 one was in financial difficulties and the table grinders union was forced to take legal action to recover the interest on its loan to the co-operative[121]

However, by far the most significant of the available projects aimed at the creation of more powerful trade unions, was the amalgam-

ation of the various small societies, into one large organization, which could function as a more general union, no longer reliant on the declining craft based skills of these trades. This goal, whilst it would have provided the various trades with the surest means of increasing their bargaining power, proved to be insurmountably difficult for these individualistic, craft jealous trades. Although delegates could sit together in the S.F.T.C.,[122] any move towards even loose federation met with a host of objections and obstructions. The success of general unions nationally, combined with the ever decreasing real wages and status of cutlery workers, made amalgamation imperative by 1914, but the abandonment of long established, ingrained craft sectionalism was never an easy or happy decision.

With the optimism of the successful strikes of 1890-91, loose federations were formed which vertically linked the forgers, grinders and hafters into associations of table knife, spring knife and razor producers. All collapsed without any significant achievement.[123] The issue was accorded little further attention until the campaign of Charles Hobson brought amamlgamation into the limelight once more. Hobson, president of the S.F.T.C. and the Britannia Metalsmiths was also president of the International Metalworkers Congress in 1896, and a prime mover behind the foundation of the Metalworkers Federation in 1904.[124] He had campaigned for amalgamation through the pages of the Hammer in 1894,[125] and later through the Metal Worker, (the paper of the Metal Trades Federation of Great Britain) and as 'Democrat' in the Sheffield Independent.[126] As a spur to the cause of united action, the cutlery trades were combined, with a secretary and president, to form one of the six groups of trades that comprised the Federation.[127]

Responses were cautious and reluctant. The pen and pocket blade forgers initiated moves towards an alliance of the societies for defensive purposes in 1906, but supported by only six of the twelve cutlery societies, they could take no further action.[128] Likewise, the formation of the Cutlery Federation in 1907, which comprised fifteen societies and 2,500 members,[129] marked no real departure from traditional individualism. Its main concerns were negotiation and mediation which would prevent industrial disputes, joining with employers' organizations to discuss such common ground as the prevention of fraudulent marking and regulations concerning the grinding of

metals.[130] Whilst it provided moral, and a little financial support in disputes, it is more accurately seen as an expression of the continued commitment of the unions' leadership to conciliation and guild practices, than any forward-looking espousal of the principle of federation. It was scorned by the I.L.P. for its conciliatory approach, designed to blur any antagonism between labour and capital.[131]

Similarly, the negotiations inaugurated in 1910 by the table and butchers knife hafters' society, came to nothing. Of the sixteen cutlery societies, only one favoured amalgamation into one large society, the majority preferring limited, sectional amalgamation.[132] Furthermore, the committee established to draw up schemes for sectional amalgamation, reached few conclusions and was criticised for its half-heartedness,[133] whilst individual societies bogged themselves down in protocol. In the spring knife trade, for example, every proposed rule was put before each individual society to be voted upon, and even then, the final format, which needed a 5/6 majority of all spring knife delegates,[134] was defeated by 59 votes to 130 against the amalgamation.[135] The practical submersion of individual loyalties was similarly distant amongst the various branches of the table knife trades.[136] Thus federation and mutual support remained ad hoc and of an essentially moral nature, in such traditional areas of grievance as the definition of what constituted a 'hand forged' piece of cutlery and its correct marking as such.[137]

Perhaps because of the slowness, difficulties and craft jealousies encountered in attempts at sectional combination, the form of wider union finally opted for by most cutlery societies, was membership of the National Amalgamated Union of Labour. (N.A.U.L.) This course of action was further advanced by the national successes of such general unions, and also by the ability and charisma of its local organizer, A.J.Bailey. The N.A.U.L. had organized men in steel and engineering works, in municipal employment and coal mining, into a strong force in the 1890s and 1900s, and its membership was open to all.[138]

First to join were the table knife grinders, in September 1913. They recognised the benefits of membership which, whilst leaving the name and identity of the union intact, and with certain leeway to manage their own affairs, also provided it with N.A.U.L. funeral, accident and victimisation funds, and free legal advice, all for a

contribution of 6d. per week, 3½d. of which went to the N.A.U.L.[139] With the help of Bailey and the N.A.U.L., and of course, the good trade of 1913, the grinders gained rapid successes. Wheel rents were reduced from 1/3 to 1/4 of wages, and a new price list enforced, which represented a 5% increase in wages. Strikes, which were necessary at only three firms, (which were outside the manufacturers' association) were speedily won, and membership increased from 250 to 850.[140]

Bailey was similarly successful in persuading the spring knife cutlers that "the day of individual bargaining from the men's standpoint and the day of little unions was at an end. They were now dealing with big numbers and big capital. If the cutlers and grinders wanted to improve their status and renumeration... they could only do so with a national backing".[141] These two trades first united in the Amalgamated Cutlery Union at the end of 1913, and then joined the N.A.U.L. in January 1914.[142] Membership increased from 400 to 1,700 in one year, whilst extra counts of fourteen to a dozen were abolished, and price lists increased by up to 50% at the worst paid firms.[143]

By 1914, then, the cutlery unions were "waking up" to the "spirit of the times".[144] The remaining craft societies complained that general unions were canvassing cutlery workers outside factory gates,[145] and by 1916, the scissor forgers, and workboard hand, and the pen knife cutlers had also joined the N.A.U.L.[146] However, whilst it was an acknowledgement that they were no longer an elite band of high status craftsmen, membership of the N.A.U.L. did not mark a complete break with the past. The unions maintained considerable independence of identity and action, freedom which they valued dearly, and further-more A.J.Bailey was a steadfast exponent of mediation and conciliation. He always stressed that "they were not out for a strike or a policy of down tools",[147] but peaceful, negotiated settlements which would be long lasting.[148]

Thus, by the end of this period, the various cutlery societies had travelled some way towards recognising their declining status and bargaining power, and the consequent need for changes in organizational policy. Membership was increased by the adoption of more inclusive policies and some measure of federation. However, although marginalized and diluted by mechanized and subdivided production techniques, the craft elitism[149] and proud heritage of the skilled artisan

continued to colour attitudes towards membership and tactics. Such prejudices and preferences were superseded only slowly. The opening up of the society to less skilled workers, and federation with other crafts were changes which were arrived at only hesitantly, belatedly and reluctantly.

Footnotes

1. E.g., Webb MSS, pp.138-41, 145-49, 191-200, table blade hafters were weaker than grinders, and razor hafters weaker than razor forgers.
2. The spring knife cutlers established a society in 1850, but it was only maintained in the boom years of 1862-66 and 1871-74, S.Pollard, History, pp.136, 141; Lloyd, p.301. The table and butchers knife hafters also collapsed 1878-87. Webb MSS.,p.138; S.Pollard, History, p.136. The razor forgers and grinders and the scissor grinders, skilled trades in which mechanization had made less progress, all maintained unions throughout the period 1870-89, S.Pollard, History, p.136; Webb MSS., pp.196, 200, 312. In table knife grinding, where mechanization and the subdivision of labour had progressed further, the trade union, re-established in 1863, collapsed 1875-90, S.Pollard, History, p.136; S.I., 23.10.1890; Webb MSS. p.145.
3. P.P. 1886, XXI, R.C. on the Depression, C.Belk, q.2914; R.Harrison and J.Zeitlin (eds.),Divisions of Labour: Skilled Workers and Technological Change in Nineteenth Century Britain, Brighton, 1985, see particularly R.Whipp , 'The Stamp of Futility: The Staffordshire Potters 1880-1905', p.130.
4. S.D.T., 7.2.1872; S.I., 6.3.1872.
5. S.I., 23.10, 1880.
6. S.I., 18.1.1877.
7. E.g., the spring knife cutlers saved £100 per quarter in the early 1870s, S.I., 31.10.1873, whilst the razor grinders paid out over £4,000 to members in the first four years of its existance, S.I., 2.2.1884.
8. S.I., 27.6.1872.
9. Rules of the Number One Lodge of the Spring Knife Cutlers Protection Society, Sheffield, 1872.
10. Ibid.
11. Ibid.
12. S.Pollard, History, p.136.
13. P.P. 1867, XXXII, Report Presented to the Trade Union Commissioners.... Appointed to Inquire into Acts of Outrage or Wrong....In the Town of Sheffield, c.3952I.
14. D.Smith, Conflict and Compromise, p.42.
15. P.P. 1867, XXXII, Outraged Inquiry, R.Holmshaw, q.2086-7; P.P. 1889, Report on the Small Pox Epedemic in Sheffield During 1887-8, by Dr.Barry, c.5645, p.251,

"The population of Sheffield is, for so large a town, unique in its character, in fact it more closely resembles a village than a town, for over wide areas, each person appears to be acquainted with every other and to be interested with that others concerns."

16. S.Pollard, introduction in, The Trades Union Commission: Sheffield Outrages Inquiry, 1867, London, 1971, p.xi, P.Joyce, Work, Society and Politics: The Culture of the Factory in Later Victorian England, Brighton, 1980. Although Joyce examines the culture of the northern factory town, his conclusions are similar, p.xiv, "much of what had seemed to be outside the purview of work, was in truth an expression of the work experience."
17. E.J.Hobsbawm, 'Artisan or Labour Aristocrat?', p.367.
18. S.Pollard, Sheffield Outrages, p.ix; Holmshaw, qs.2052-4, 2440.
19. In a year of average trade a quarter of the fork grinders in the union were maintained 'on the box', whilst those that worked paid 10-15% of their earning towards supporting them, V.Melton, 'Trade Unionism and the Sheffield Outrages', Sheffield City Museums Information Sheet No.6, p.4. The table knife grinders paid out £3,000 to their unemployed in 1841, F.Hill, Trade Combinations, pp.349-50.
20. E.J.Hobsbawm, 'Artisan or Labour Aristocrat?', p.361, quotes from Thomas Wright, Some Habits of the Working Classes, 1867, p.102, a journeyman was "taught both by the precepts and the examples of his mates, that he must respect the trade and its written and unwritten laws, and that in any matter affecting the trade generally he must sacrifice personal interest, or private opinion, to what the trade has rightly or wrongly ruled for the general good."
21. P.P.XXXII, Outrages Inquiry, R.Holmshaw, qs.2135, 3135-44.
22. S.Pollard, Sheffield Outrages, p.xiv.
23. The first stage in bringing an errant workman into line, would be for his union officials to visit his employer, asking the employer to pursuade the offender to comply. If this failed, a strike would take place, forcing the employer to sack the offender, or force him to comply, P.P. 1867, XXXII, Outrages Inquiry, R.Holmshaw, qs. 2055, 2137, G.Bulloss, q.17003, J.Mallinson, q.17113-5.
24. Ibid., R.Holmshaw, qs.2064-5; S.Pollard, Sheffield Outrages, p.x, xv; S.Pollard, 'Ethics of the Sheffield Outrages,' T.H.A.S., vol. 7, 1954.
25. See chapter 2.
26. Details of wage rates in appendix 5; R.Harrison and J.Zeitlin (eds.), p.11, "Flint glassmakers were protected from the competition of pressed glass by the

requirements of aristocratic and haute bourgeois tables, where differences, which were trivial from a utilitarian point of view, became of the highest importance exactly for that reason."

27. G.Crossick, An Artisan Elite in Victorian Society: Kentish London 1840-1880, London, 1978, p.59, crucial to the labour aristocrat's status was an employment structure where "the path out of dependence on wage employment was always a possiblity." R.Gray, The Labour Aristocracy in Victorian Edinburgh, London, 1976, pp.130-5; R.Whipp, 'The Stamp of Futility: The Staffordshire Potters, 1880-1905, p.138, R.Harrison and J.Zeitlin (eds.).

28. H.Pelling, 'The Concept of the Labour Aristocracy', in Popular Politics and Society in Late Victorian Britain, London 1968, argues that the six criteria outlined by E.J.Hobsbawm in Labouring Men, to discern labour aristocratic status (especially wage rates, social security and the possibilities of advancement) were increasingly meaningless as mechanization made even the position of the skilled worker vulnerable.

29. A.Campbell and F.Reid, 'The Independent Collier in Scotland', pp.54-5, in R.Harrison (ed.), The Independent Collier: The Coalminer as Archetypal Proletarian Reconsidered, Hassocks, 1978; see also Mark Hirsch, 'Sailmakers: The Maintenance of the Craft Tradition in the Age of Steam,' p.109, in R.Harrison and J.Zeitlin (eds.).

30. R.Gray, pp.252-4; G.Crossick, pp.20, 81, argue that the position and ideals of the labour aristocracy drew much from indigenous working class traditions, and past social and economic experiences, rather than being a middle class 'hand out.' The Sheffield Morning Telegraph, 4.11.1978, an old hand forger reflects that "...pride in crafsmanship has been a supreme force in his life."

31. Before 1890, there appears to be only one example of joint action: the very loose combination of scissor forgers and workboard hands in 1876, S.I., 14.3.1876, 8.4.1876. However, the scissor grinders stood aloof, S.I. 20.6.1876. For parallels in the pottery trades, see R.Whipp, 'Work and Social Consciousness: The British Potters in the Early Twentieth Century, Past and Present, no.119, 1988, pp.136-8.

32. E.g., the scissor forgers, S.I., 12.10.1872; or scissor grinders, S.I., 26.7.1873, "the scissor trade is....suffering from the high wages being insisted upon by the grinders. Being few in number, the grinders are little affected by the slackness of trade; but the forgers and smiths being proportionately more numerous, are less fully employed, and as a consequence, are in may cases,

indifferently employed."

33. E.g., when the president of the pen and pocket blade forgers was charged and fined for rattening, other societies collected funds to cover his expenses and fine, agreeing to mutually support each other in future cases of this kind, S.I., 17.12.1875, 15.8.1872.

34. E.g., razor forgers and strikers struck together, S.I., 10.4.1883.

35. Lloyd, p.294. However, outworkers and small masters were generally only included in the unions if their work was high quality and well paid, Webb MSS., p.193. The chronic sectionalism is illustrated by the table and butchers knife hafters' union, which had only recently managed to unite the formerly separate 'country' and foreign branches (i.e. high and low quality) into the union, S.I., 21.2.1872.

36. S.I., 5.11.1875.

37. Ibid.

38. S.I., 22.8.1894, an interview from the 1880s, which was printed on the death of Joseph Mallinson, secretary of the society.

39. James Barber Turner, An Address to the Operative Spring Knife Cutlers, May 1873, Sheffield.

40. S.I., 13.2.1872.

41. Ibid., James Barber Turner, An Address.

42. Webb MSS., pp. 138-40.

43. See appendix 1.

44. Webb MSS., pp.298-300.

45. S.I., 26.3.1905.

46. A.D.K.Owen, A Report on Unemployment in Sheffield, Sheffield 1832, p.16 .

47. P.P. 1886, XXI, R.C. on the Depression, R.Holmshaw, qs.1274-7.

48. E.g. razor grinders and hafters, Webb, MSS., pp. 191, 196; P.P. 1867, XXXII, Outrages Inquiry, R.Holmshaw, qs.2112-32; Rules of the Spring Knife Cutlers, 1872; apprentices who were not sons of members were supposed to pay a fee of £2 to the union, before beginning work, Webb MSS, p.276. In the St. Philips zone, a centrally located cutlery producing area, the marriage registers 1879-1883 (S.C.L. PR 10/78) illustrate that most cutlers (75%) were the sons of cutlers. Of the 36 'light' trade cutlers, as defined in this thesis, 67% followed exactly the same trade as their father. Moreover, half of the cutlers' brides also came from cutlery working families.

49. P.P. 1865, XX, J.E.White's Report, paras.33-4, (p.3). As late as 1882, some masters still clothed and fed their apprentices, who boarded with them, S.C.L., M.D. 2362.

50. Webb MSS., p.345, fork grinders no longer needed to enforce their apprenticeship regulations, the trade being so unhealthy and badly paid, that boys were unwilling to enter it. The razor, scissor and table grinders' societies were all reasonably strong, and although unable to enforce all their regulations, enforced those requiring apprentices to be sons, Webb MSS., pp.147, 196, 313.

51. S.I., 29.7.1870.

52. S.I., 21.10.1871.

53. S.I., 6.5.1890, 21.5.1890, with prices so low, a forger asked, "who would under the circumstances, put his son to such a trade? I bound my son, 14 years of age apprentice to another trade, although I had a hearth and tools idle."

54. P.P. 1865, XX, J.E.White's Report, cases 201-203, (pp.44-45). The unions felt responsible for the maintenance of high quality work through apprenticeships: inadequate apprenticeship would produce insufficient skilled men to manufacture the products for which Sheffield was famous, S.Pollard, 'Ethics of the Outrages', p.125. Similar assumptions were still being made in the 1940s and 50s: British Steel Maker, Sept. 1946, p.462; A Survey of Sheffield's Industries, compiled by the Junior Chamber of Commerce, Sheffield, 1956., p.4.

55. The Metal Worker, vol.II, no.19, pp.145-50.

56. P.P. 1889, XIII, S.C. on Sweating, S.Uttley, qs.24834-8.

57. Ibid., qs.24892-24906.

58. P.P. 1892, XXXVI, R.C. on Labour, A.Fretwell, q.12754, Holmshaw, qs.19444-6. See also chapter 7 , p.219 , and chapter 8, pp.277-80.

59. S.I., 16.3.1871, there had already been 166 cases of rattening in the cutlery trades, since the 1867 Royal Commission.

60. S.I., 15.10.1870.

61. S.I., 15.10.1870, 13.2.1872.

62. S.I., 7.5.1870, 11.6.1872, 17.5.1881, 11.9.1881, The Times, 5.10.1874.

63. S.I., 7.6.1872. Some workers rattened, or attempted to ratten ex-employers, when they were dismissed, S.I., 10.1.1879, 24.12.1887.

64. The Times, 4.6.1872.

65. For example, see S.C.L.M.102. Marsh Bros. received a letter in 1874: "Dear Sir, I am informed that you are going to employ J.W., razor blade forger. His character is very bad, as he is both idle and drunken, he has never worked

since Christmas, and he had to leave his last place because he did not work. His father is in your employ at the present time as a razor blade striker and he has been to Wakefield (court) for neglect of his family, three times at least."

66. S.I., 29.11.11, 10.7.1913, 4.8.1913, S.D.T., 4.8.1913.

67. J.A.Schmiechen, Sweated Industry, pp.190-1; D.Bythnell, pp. 212-15, 216, "even exclusive craft societies, who often seemed oblivious.of their poorer unskilled brethren found that they could not ignore the problems inherent in outwork, and in the end were driven to press for its abolition." The importance of solidarity with lesser skilled sections of the workforce, and also the constant redefinition of the basis of exclusion, is illustrated in R.Harrison and J.Zeitlin (eds.); and J.Zeitlin, 'Craft Control and the Division of Labour: Engineers and Compositors in Britain, 1890-1930,' Cambridge Journal of Economics, 3, 1979.

68. The Metal Worker, vol.III, no.27, March 1909, p.65.

69. Ibid.

70. Table and butchers' knife grinders society, minutes, 14.10, 1909, 21.4.1910.

71. Ibid., 20.7.1911.

72. Pen and pocket blade forgers' society, minutes, 1.2.1910, 11.10.1910, 28.11.1910, (51 forgers were pro and 31 anti the admission of the smithers, in one ballot) 9.12.1913, 13.5.1914.

73. Lloyd, p.291.

74. E.g., pen blade forgers' minutes, 19.5.1911, 13.11.1911, the secretary of the union visited forgers and smithers for six hours per week, for eighteen months, and persuaded 48 smithers and 79 forgers to join the society. However, it was recognised to be pointless to visit potential members when trade was bad, as they would not therefore be able to afford subscriptions, minutes, 11.2.1908.

75. S.Pollard, History, p.216.

76.

Trade	No. of adults in Soc., 1891	Soc. members as % of whole Trade	No.of adults in Soc., 1910	Soc. members as % of Whole Trade
Table Knife Forgers	300	90	174	87
Grinders	650	64	150	20
Hafters	300	46	302	38
Spring Knife Forgers	190	30	136	61
Grinders	200	28	230	38
Cutlers	1800	82	420	23

contd.

Razor	Forgers	140	90	54	22
	Grinders	320	89	200	44
	Hafters	180	90	180	72
Scissor	Forgers	140	78	-	-
	Grinders	120	60	122	61
Work board hands		40	20	60	37
Fork Forgers and Grinders		220	40	60	50

Source: Lloyd, p.288.

77. S.I., 4.8.1913.

78. The table knife hafters society lapsed 1893-1901, the scissor forgers society lapsed 1894-1911, S.I., 24.5.1890; S.Pollard, History, pp.125, 202; Lloyd, pp.289-311.

79. Table blade grinders' minutes, 9.3.1910, 16.2.1911, 15.10.1908, teas, concerts and whist drives were held as ways to "draw the men together."

80. Ibid., 29.5.1909, 14.10.1909, 26.8.1908, 21.6.1911, there were very low attendances at meetings, particularly when these were held for datal workers, or employees of specific firms. However, when strike action became imminent, 1000 workers attended the general meeting, minutes, 7.11.1913.

81. P.P.1892, XXXVI, R.C.on Labour, R.Holmshaw, qs.19497-19501; S.I., 10.2.1889.

82. See appendix 1.

83. S.D.T., 4.8.1913, 1.12.1911.

84. P.P.1910, VIII, R.C. on the Poor Laws, A.J.Hobson, q.88368. Contemporaries frequently drew a link between boy labour and the growth of casual and under-employment amongst adults. With the decline of indentured, semi-paternal appreticeship, boys tended to be taught one specific task, thus "They are supported above the abyss of unskilled labour by the fragile bridge of a single aptitude," R.A.Bray, 'The Apprenticeship Question,' Economic Journal, XIX, 1909, p.413. See also A.Freeman, Boy Life and Labour: The Manufacture of Inefficiency, London, 1914; R.A.Tawney, 'The Economics of Boy Labour', Economic Journal, XIX, 1909.

85. P.P. 1910, VIII, R.C. on the Poor Laws, A.J.Hobson, qs.88392-5.

86. P.P.1909, XVI, R.C. on the Poor Laws, Report by Mr A.D.Steel-Maitland, Appendix XXXVI, pp.354-7.

87. P.P. 1910, VIII, R.C. on the Poor Laws, A.J.Hobson, qs.88368, 88390.

88. A.E.P.Duffy, 'New Unionism in Britain 1889-90: A Reappraisal,', Economic History Review, XIV, 1961-2, views their willingness to enlist state help as the major feature distinguishing the attitudes of the 'new unions'. For details on technical education see chapter 8, pp. 279-80.

89. C.More, Skill and the English Working Class, 1870-1914, London, 1980; T.Matsumura, pp.164-5.

90. P.P. 1892, XXXV, R.C. on Labour, C.Hobson, q.19203, R.Holmshaw, qs.19775-7; Pen and Pocket Blade Forgers' Protection Society, Rules, Sheffield, 1911; Table and Butchers Blade Society Rules, Sheffield, 1908; P.P. 1910, VIII, R.C. on the Poor Laws, A.J.Hobson, q.88349; S.I., 12.7.1909, Joseph Rodgers still had indentured apprentices, but they were one of the few firms that still did.

91. Table blade grinders' minutes, 25.9.1907, resolved that no lads were to enter the trade, unless their father was already a member, minutes, 16.9.1909, 14.8.1912, men with more than one apprentice were disciplined. P.P. 1910, VIII, R.C. on the Poor Laws, A.J.Hobson, q.88349, the unions' "regretable rules against apprenticeship" did occasionally shorten the supply of labour to the trades. S.I., 6.5.1890, the scissor forgers embarked upon a serious dispute because a firm apprenticed a boy who was not the son of a member, when the sons of four members were waiting to be apprenticed. Table blade grinders minutes, 9.10.1911, 15.11.1911, in this period of good trade, this society even attempted to reduce the number of men leaving to pursue the trade in Dublin and Brimingham. The Sheffield Morning Telegraph, 4.11.78, a hand forger, apprenticed at Joseph Rodgers in 1908, remembered that "You had to be recommended by someone to get in..." For him it was no problem, his grandfather had been a top forger at Rodgers. See also The Star, 15.4.1975.

92. P.P. 1912, II, Report of the Committee on Outworkers, W.Hobson, q.4172; P.P. 1908, XXXIV, Fair Wages Committee, G.H.Shaw, q.2617; Sister Margaret: Eight Cases of Married Women Workers Wages, 1908, S.C.L., M.D. 1441/11.

93. P.P. 1908, XXXIV, Fair Wages Committee, A.J.Hobson, q.5565. 'Respectable' manufacturers refused however, to employ married women, believing that this was 'morally wrong', when they had husbands to support them, and families to attend. Moreover, it was stated that married women cut down wage rates for a variety of reasons: because they were not believed to be dependent on their earnings, using them merely for 'amusements and luxuries' or because if they were dependent on their own earnings, through the idleness or unemployment

of a husband, their need would be so great that they would be tempted to undersell their labour, P.P. 1908, III, Committee on the Truck Acts, W.Dodgson, q.1172; P.P. 1912, II, Report of the Committee on Outworkers, W.Hobson, qs.3999, 4097-8, 4173-5, 4197-4200.

94. Ibid., G.H.Shaw, qs.2640-4 ,2613-18; P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19681-2; Sister Margaret; S.Pollard, History, p.211. Earnings for full-time work were as follows:

	women	girls
Warehouse Work	8-14s.	3-4s.
Scissor Finishers	5-8s.	-

E.Cadbury, M.C.Matheson and G.Shann, Women's Work and Wages, London, 1906, pp.119-134, when women replaced men their wages were generally only one third one half of what the men had formerly received, but their work was normally light, mechanised and non-competitive with that of the men. For details of the growing number of female workers, see appendix 1.

95. Sister Margaret; P.P. 1892, XXXVI, R.C. on Labour, Answers to Questions of Group A, pp. 13-15. This attitude was not untypical of unions in the 'sweated trades' generally, see S.Lewenhak, ' 'Our Mary' and 'Sweated Labour'', in Women and Trade Unions: An Outline History on Women in the British Trade Trade Union Movement, London, 1977.

96. P.P. 1908, XXXIV, Fair Wages Committee, G.H.Shaw, qs.2619-21.

97. C.Burke, 'Working Class Politics in Sheffield, 1900-1922: A Regional History of the Labour Party', Ph.D., 1983, Sheffield, p.67.

98. S.F.T.C. Annual Report, 1914, p.11.

99. S.I., 6.3.1914; 10.4.1913, "In the cutlery trade, the women worked in what were generally called gangs, with a man, generally a bully, at the head of them. He would be off drinking generally two days in the week, but on Saturday took the money, gave small shares to each of his workers, and kept the rest for himself."

100. P.P. 1908, XXXIV, Fair Wages Committee, A.J.Hobson, q.5568; P.P. 1910, VIII, R.C. on the Poor Laws, A.J.Hobson, qs. 88408-9.

101. S.I., 1.6.1889, the spring knife cutlers' union was divided into five districts, four for Sheffield and one for Wadsley, each with a managing secretary, who represented local problems in the overall committee. Webb MSS, p.339, the spring knife grinders' committee was composed of delegates representing the eight main firms; whilst the table blade grinders' committee was run along similar lines, minutes, 21.11.1907.

102. E.g., table blade grinders' minutes, 8.5.1907, 8.3.1911.

103. S.F.T.C., Annual reports, 1905, pp.22-30, 1906, pp.23-31.

104. S.I., 1.6.1889, the secretary of the spring kinfe cutlers was paid 30s. per week. Webb MSS, pp.338-9, the spring knife grinders appointed a secretary for three days per week, paid £1, but in 1892, appointed a full-time secretary at £2 per week. Pen and Pocket Blade Forgers', Cash Account Book, 1893-1905, General Account Book, 1911-54, S.C.L., M.D. 2351, 2353, their treasurer and secretary were still part-time, paid £1 each, per week. Table blade grinders' minutes 19.8.1911, 18.3.1914, their part-time secretary was made full-time and paid £2 per week, when the society joined the N.A.U.L. in 1914.

105. P.P. 1908, III, Committee on the Truck Acts, 1907, A.J.Hobson, q.12464; J.Mendelson et al, pp.58-9; see appendix 4, R.Holmshaw, jnr.and snr.; J.Mallinson; W.F.Wardley.

106. Pen and Pocket Blade Forgers' Rules, 1911, Sheffield; table blade grinders' minutes, 27.8.1908.

107. P.P. 1911, LXXII, National Insurance Bill (Part II Unemployment) Tables Showing Rules and Expenditure of Trade Unions in Respect of Unemployment Benefits, cd.5703, pp.72-3; Webb MSS., pp.141, 316, 319; S.Pollard, History, p.342.

108. Pen blade forgers' minutes, 5.8.1905, 7.2.1906; Webb MSS, p.338.

109. Ibid., 9.12.1913, 13.5.1914, no out of work benefit for the less skilled.

110. P.P. 1911, LXXII, National Insurance Bill, Tables, pp.74-5; Webb MSS., pp.141, 316; S.Pollard, History, p.342.

111. S.F.T.C., Annual Report, 1908, p.5.

112. P.P. 1911, LXXII, National Insurance Bill, Tables, p.240; S.Pollard, History, p.342.

113. Pen and Pocket Blade Forgers' Rules, 1911; S.I., 23.6.1908, this society would not pay out unemployment benefit until its funds totalled more than £500, and in the period 1893-1908, it only paid out £47 as unemployment benefit.

114. Webb MSS., pp.141, 298-9, 312, 336, the table knife hafters, for a contribution of 7d. per week, received no out of work pay, but 13 weeks sick pay at 8s. per week, and a £5 funeral benefit for a man and his wife. The scissor blade grinders and workboard hands ran separate, optional sick societies after 1891, partly because young members refused to join, if they had to support a large number of aging members in the sick society.

115. P.P.1911, LXXII, National Insurance Bill Tables, pp.72-3.

116. S.I., 23.6.1908, the pen and pocket blade forgers only paid out £213 and £108 in sickness and funeral benefits; table blade grinders' minutes, 12.10.1911, 12.11.1911, no members were admitted once they were over 65 years of age, whilst those who joined when they were over 50 received only limited benefits.
117. Table blade grinders' minutes, 20.6.1912; S.F.T.C., Annual Reports, 1907, p.3; 1909, p.13; 1912, p.11; 1913, p.4; see chapter 8,p. 287.
118. Ibid., 5.11.1913; S.I., 2.5.1889; P.P. 1892, XXXVI, R.C. on Labour, A.Fretwell, q.19637.
119. E.g., pen blade forgers' minutes, 28.6.1904, 11.6.1907, 14.2.1911, invested £500 in Harrogate Corporation, and £400 in Sheffield Corporation, at 3½% interest.
120. P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19822-3; S.Pollard, History, p.150.
121. Table blade grinders' minutes, 27.2.1908, 5.3.1908, 10.9.1908, 25.3.1909, 29.4.1910, 6.6.1910, 2.4.1911, 25.4.1912.
122. S.F.T.C., Annual Reports, e.g., 1903, p.23; 1904, p.26; 1905, p.22.
123. Webb MSS., pp.142, 195-5; Lloyd, pp.293-4, 303, 307; S.I., 13.2.1890.
124. The Metal Worker, vol.IV, no.42, June 1910, pp.129-33.
125. The Hammer, no.17, 10.2.1894.
126. The Metal Worker, Feb.1907, Special Supplement, for the third conference of the Metal Trades Federation of Great Britain, held in October, 1906. Hobson was "Shocked at the waste of energy and of money occasioned by the sectionalising of certain trades and ... because they are sectionalised, they are woefully weak, whilst the possiblities of strength are within easy reach, and at a quarter of the cost of management," S.I., 10.4.1909, 17.7.1909, 30.11.1911, 2.12.1911.
127. The Metal Worker, Feb.1907, Special Supplement, ppiii, 10-11.
128. Pen blade forgers' minutes, 4.9.1906, 22.1.1907.
129. The Metal Worker, vol.II, no.23, Nov.1908, p.225; table blade grinders' minutes, 6.12.1911, 12.3.1908, 19.3.1908, the committee was composed of one delegate per 100 members, and a levy was charged of 5s. per 100 member .
130. P.P. 1908, XXXIV, Fair Wages Committee, R.Holmshaw, q.2554.
131. Table blade grinders' minutes, 9.4.1908, 26.1.1911, 12.4.1911, 7.5.1913; C.Burke, p.34.

132. Pen blade forgers' minutes, 21.3.1911; S.I., 30.11.1911.

133. S.I., 30.11.1911.

134. S.I., 24.11.1911; S.D.T., 24.11.1911.

135. Pen blade forgers' minutes, 24.1.1912; 3.6.1913; letters regarding amalgamation in 1912, showed the grinders to be particularly reluctant, S.C.L., M.D. 2365(5).

136. Table blade grinders' minutes, 9.10.1911; S.I., 30.11.1911, there was particular difficulty over the question of rates of benefits, as all the societies had different rates of contributions and benefits.

137. S.C.L., M.D. 2365(6), the pen blade forgers sent circulars to all other cutlery unions, asking for their mutual support in demands that hand forged items be properly marked as such. In the razor forgers dispute over this issue (see chapter 3, pp. 94-5) large sums were given by other unions to support the forgers' defenders, pen blade forgers' minutes, 12.8.1913; table blade grinders' minutes, 25.3.1914.

138. S.Pollard, History, p.220.

139. S.I., 5.11.1913; table blade grinders' minutes, 3.9.1913, 17.9.1913, 23.9.1913, 24.9.1913, this union paid a membership fee to the N.A.U.L. which covered all its members, and amounted to £196.

140. S.I., 18.10.1913, 7.11.1913; S.Pollard, History, p.220.

141. S.I., 12.12.1913.

142. Ibid.

143. S.Pollard, History, p.220.

144. S.I., 24.11.1911.

145. S.F.T.C., Annual Report, 1914, p.9.

146. S.Pollard, History, p.220.

147. S.I., 12.12.1913; see appendix 4, A.J.Bailey.

148. S.I., 18.10.1913, "Owing very largely to the fact that the men's cause has been championed by Councillor A.J.Bailey, peaceful methods have triumphed ... The employers state that they have been given advances to a much larger extent than they intended. Negotiations, however, have been carried on in such a friendly spirit that the terms were not only agreed to, but a proposal was also submitted to form a joint board of four from each side to deal with difficulties in the future." Table blade grinders' minutes, 25.2.1914, the society gave A.J.Bailey

£15 in appreciation for his help.

149. The Sheffield Morning Telegraph, 4.11.78, a blade forger, apprenticed at Joseph Rodgers in 1908, remembered that the hand forgers were an elite - "it was an elite craft".

CHAPTER 6 INDUSTRIAL RELATIONS

The notable feature of industrial relations in the cutlery trades, is their reliance on, and preference for conciliation and peaceful agreement, rather than conflict and strikes. Disputes were largely limited to the periods of good trade which witnessed general and national industrial organization and militancy: 1871-3, 1889-91, and 1911-13. Negotiated settlements were favoured because of the general tendency of high-class producers, both masters and men, to see eye to eye on many issues, accustomed to the long-standing use of co-operative, guild-like regulation and conciliation procedures. However, peaceful settlements were also preferred, because both employers and workers were deeply divided amongst themselves. Workers were divided according to skill and production process but, more importantly, by the exclusive elitism of the skilled craftsmen, and the aloof attitude of the hated subcontractors. Employer unity was inhibited by rampant competition and jealous individualism, as well as the equivocal, shifting policies of the main firms. Their own disunity, combined with their continued reliance on the skills of the workers, meant that employers were never in a position to undertake a consistent and substantial policy of deskilling.

At the root of this system of industrial relations, with all its idiosyncrasies, was the equally anomalous structure of the cutlery trades, dominated by a reliance on traditional forms of production, traditional values and experiences. The industrial relations of this period were a product of the continued use of, and need for skilled men, varied high quality products, continued independent production, the respect of trading reputations, and the absence of any major divide between masters and men.

The workers came to realize that many of the problems under which they laboured, were a product of the peculiar structure of their trades. However, changing the system of industrial relations in such a way that would enable them to be in a position to attack the basic structure of the industry, proved to be extremely difficult. The industry remained reliant on a huge range of often high quality products, which kept employment units small, employers divided and the respect for skill still relevant. Moreover, amongst the men, independ-

ence, craft loyalties and the habits of individual bargaining were all extremely deep rooted, further hampering attempts to abandon the traditional themes and practices of industrial relations.

The Nature and Conduct of Disputes

The main features of disputes in these trades were their limitation to the brief periods when trade was sufficiently buoyant for the men to feel able to demand improvements, and their small-scale, dispersed nature. Disputes generally centred upon the ever-declining real wages available in the trades, but at the root of both conduct and cause of disagreements, was the traditional handicraft structure of the trades. This structure was the principal reason for the competition and jealous individualism of both workers and employers, the lack of clear economic or class divide between employers and workers, the dispersion of the industry in which personal, one to one relations were never superseded by a class-conscious factory-based proletariat, and the antiquated, disparate piece price lists and other vague trade customs. Grievances could be phrased in the 'modern' terminology of a minimum wage, but verbalization apart, they were essentially the old, customary demands for conditions which would assure craft dignity and independence.[1]

However, changes were occurring, particularly in the renewed good trade and organizational activity of 1910-14, which were bringing the pattern of industrial relations closer to that of other industries. The men slowly came to realize that the employers gained considerably more from the system than they did : their 'indepedence' and skilled status were increasingly illusory. Divisions in the workforce came to reflect the distinction between the subcontracting team master and the rest, rather than skilled versus unskilled men, as more employment became subdivided, deskilled and low paid. Thus, as the skill and status of the majority declined, so class based divisions became clearer and the distinction between unionist and non-unionist greater.

Employers were generally antipathetic towards the various cutlery trade unions. Initally, the rattenings were cited as the reason why unions should be kept firmly in check. Criticising the 1871 Trade Union Bill, the Chamber of Commerce protested that "with the remembrance of the evidence given before the examiners...into the trade outrages in Sheffield fresh upon their minds, your petitioners cannot

but regard with the greatest possible disfavour, a bill proposing to repeal the only statutory enactment protecting employers and workmen against trade 'molestation and obstruction'... Your petitioners venture to assert that the act is appreciated by the more intelligent part of the workmen as a protection agaist the violence, threats and molestation of some of their comrades, who, not content with placing all men upon an equal level, would carry out their objects with compulsion."[2]

Large employers shunned relations with the unions, preferring to deal with only their own workmen. Although most employers had recognised the unions by 1892, and allowed their secretaries onto the premises in the event of a dispute, some were reluctant to treat with the unions, persuading their workers not to join, or even refusing to employ unionists.[3] Rodgers attempted to deal with all their strikers individually in 1892, offering "a good position" to all those who would concede to their demands, causing the union to state that the firm were interfering with their workers' "rights of free combination".[4] Like many large firms, Rodgers were proud of their good relations with their men which, they believed, did not require the intervention of outsiders or a third party.[5] At Atkinson Bros., relations had always been "amicable and cordial ...no strikes or serious disputes have occurred at the Milton Works, and every matter requiring discussion is settled between masters and men directly without the intervention of any third party whatsoever".[6]

Reluctance to deal with a union was sometimes argued in terms of the small number of workmen who were members, often a minority of the total workforce.[7] Various large and prestigious firms were openly hostile to the unions.[8] A trade union secretary who aproached Hunters concerning their refusal to pay statement prices for government work, received the following reply from the managing director: "He was rather indignant at being approached on such a matter as he knew his business without being interfered with and he would not allow us to interfere with either his business or his men. Said if we had not already written to the government, we could do so...He said he would not allow us to interfere with his men, if we did, he would interfere with us. It was not a matter of £5 with him, he looked after his men, they worked together, and the 9 blades they were doing over a gross, they were making a present of".[9]

Throughout this period, disputes were always small-scale, involving very few men, often at individual firms and always in separate trades. The number of workers involved was often less than twenty,[10] whilst the largest strikes would only amount to the withdrawal of 2-300 men.[11] Strikes generally took place at a series of individual firms, normally one firm at a time.[12]

This dispersion was partly the result of the lack of any agreement between manufacturers in an industry in which a huge diversity and variety of products was the rule, and were competition was ruthless. A manufacturer of high quality pen knives for the domestic market would have little in common with a manufacturer of cheap scissors for the colonies; a large and reputable house would have nothing but mistrust and distain for small masters. Thus, united action was virtually impossible,[13] and the few federations or manufacturers' associations which were formed were fragile and quick to collapse in disarray.[14] Even in 1909 the Cutlery Manufacturers Association could only count on the support of 90% of the major firms (let alone the host of small producers), many being prevented from joining because of their "very independent nature".[15] Thus, workers, unions and even the S.F.T.C. were forced to deal with individual firms, a state of affairs lamented by union delegates and some manufacturers.[16]

However, it was not simply those firms who stood outside manufacturers associations who refused to conform to policy:[17] houses of similar status, who produced similar goods, often found it hard to agree.[18] In fact, it was the policy of the largest and most reputable houses which was hardest to predict. They frequently stated their wholehearted support for union action which aimed at bringing the small masters, who undercut prices and wages and also profits, into line. It was claimed by such firms that they could easily afford statement prices, and were often paying them already, and would thus welcome union efforts to equalize wage rates. Similarly, they could refuse to grant increases until general rates had been equalized.[19] At other times however, whilst some large firms applauded union action, others refused to grant the required increases.[20] Moreover, it was common practice for a prestigious firm to spearhead attempts to enforce wage reductions, conducting a trend setting 'sample' dispute,

according to which the rest of the firms in the trade would regulate their prices and policy.[21] Such respected firms were often accused by the unions of being the lowest payers in the trade.[22]

These small-scale disputes were also the result of a similar lack of unity and of group identity amongst the men, divided according to trade, branch, process and quality of the product they made.[23] Occasionally, assistance was given by the S.F.T.C., which acted as an umbrella organization, but its role was usually one of guidance, mediation and moral support, rather than active intervention.[24] At the beginning of this period, the forgers' societies, little affected by mechanization, and occupying a strategic position in the production process, were still capable of holding small-scale general strikes.[25] However, this luxury was soon lost, and all these small unions found themselves unable to afford the necessary finances required to conduct a general strike, especially as wheel or side rent had to be paid by many workers, for the duration of the dispute.[26] Thus, it was normal procedure to call a strike at a sample firm,[27] or else to transfer men from those firms who refused to grant the requires increases, to those that would.[28] Lightening strikes were also impracticable, because of their contravention of the customary periods of notice in these trades. Although contracts of service were generally oral and vague, and consequently manipulated by employers when the trade was bad,[29] the customary period of notice was normally one month, but occasionally one week,[30] and such notice was always served.

Furthermore, strikes could only be held when trade was sufficiently busy to enable workers to afford the expense of union membership and manufacturers the expense of wage increases. Demands for wage increases were frequent and successful 1871-2,[31] but were lost again soon after,[32] to be followed by a further spate of disputes and concessions 1889-92,[33] 1900-1[34] and 1911-13,[35] thus following the general pattern of British trade union activity over this period.[36] Advances could be gained and then lost again in rapid succession, because of changing trade conditions.[37] The threat of German competition, or of increased mechanization to replace a troublesome workforce,[38] as well as the non-perishability of cutlery which allowed manufacturers to clear away large stocks during a dispute,[39] were all factors which reduced the possibilites of conducting successful strikes in anything but boom trade conditions. This, along with the

hesitancy of some unions, which had never won a strike,[40] made the trade societies more ready to accept peaceful methods of settling disputes. It was common for unions to agree to work less hours as an alternative to accepting wage reductions,[41] or to agree to strictly temporary reductions which would last only for the duration of a deep depression.[42] Use was even made of the courts of law to establish the outcome of quarrels over ill-defined trade customs, such as the legality of deductions for wheel rent and 'file money'.[43] By such means, disputes were fought out, settled and the results made plain to the rest of the trade, without the expense and disruption of a strike.

United action was further hampered, in the earlier part of this period by the superior status and skill of some workers. It would be impossible to discern any stable, easily identifiable elite of labour aristocratic workers in these trades, where wages, regularity of employment, status and security all varied enormously within the various sepatate skill hierachies, and with the state of trade.[44] However, it is indisputable that some workers, by virtue of their greater genuine skills,[45] or their authority in the work process, possessed both a different outlook and a better bargaining position. Where mechanization had made little progress and where there was still little danger from teams of deskilled labour, workers were capable of pushing their demands much further.[46] The skilled men, often employed by the most reputable firms and reaping the benefits of better pay and security, would sometimes stand aloof from the union.[47] More often, they dominated the union, regarding the less skilled as 'degraded' and 'unrespectable', as a threat to their own status and wages, and unworthy of union membership.[48]

The most pressing hinderance to unity were the problems associated with the increasing practice of subcontraction work to teams of deskilled labour. Team work created a body of poorly paid, inadequately trained workers, supervised and exploited by the team leader, who was in turn employed by large manufacturers, who found that team labour produced goods at a faster and cheaper rate than individual skilled craftsmen. During the strike of spring knife workers at Rodgers in 1892, the union stated that there had "been a determination on the part of the firm to bring the men into a condition of subordination by adopting and fostering...the 'team' system - better known as the 'sweating system'".[49] The strike was weakened when the team

leaders and their men returned to work after six weeks, apparently unwilling to accept that as team leaders, they should not be allowed a higher rate of out work benefit than the rest of the men.[50] The team leaders were reviled for their "cowardly conduct": they had "become tools to injure their fellow workmen".[51] In turn, these men accused the unions and S.F.T.C. of interference in a dispute which was not their concern.[52] As late as 1907, the "indifference",[53] of the team masters was still cited as the most important handicap to successful trade unionism in the culery trades. It was asked, "Do you wonder at the methods known as 'rattening' which figured in Sheffield forty years ago? It is easy to see that the removal of a portion of tools was more effective than argument"[54]

Moreover, because of their position as small-scale employers of labour, many team leaders and small masters stood aloof from the union, if only because of the psychological differences that they believed separated them from wage labour. Accused by the unions for the falling price of labour and deteriorating quality and reputation for Sheffield cutlery,[55] the small masters counterattacked, defending their status with vigour. They reiterated their belief that each of them could become, in time, "a big employer, similar to some of the firms I am now working for...so that when my capital is large enough, I launch out into a respectable manufacturer and merchant, having retained my 'independent spirit', never having been trained to run in any other man's harness, but to rely on my own skill and perseverance".[56] Trade union criticism was bitterly resented and judged to be directed at "driving back the small manufacturers into the ranks of workmen so as to strengthen the union...But the 'little masters'...did not intend to be snuffed out without a struggle".

The aspirations of these subcontracting small masters, who were despised by the traditional elite of skilled craftsmen, further divided the workforce and complicated industrial relations. Sometimes the small master was himself so poor, and relations with his under hands were so close, that these workers were incapable of formulating any precise grievances against their team leader. At other times, the small master's position of authority in the work process and his aloof attitude, encouraged action against him.[58] In the earlier part of this period, it was the firm belief of the unions that the 'middlemen'

and small masters were responsible for all the problems which afflicted the cutlery trades,[59] thus it was their aim to join with the respectable manufacturers to reduce the cut-throat competition of the small masters. Inevitably, however in concentrating on competition and the need to raise prices, attention came to focus on 'the market' and 'the buying public' who refused to pay the higher prices which would have enabled both workers and employers to obtain a decent wage. The unions bemoaned the changing attitudes of consumers who seemed to be no longer willing to pay a decent price for a quality product: cheapness had become their fundamental concern.[60] At root lay the unions' deep dislike of competition and their continued attachment to the days when Sheffield had monopolised the world production of cutlery, whilst guild regulations had restricted internal competition.

Furthermore, the absence of any clear divide between masters and men, reinforced the pragmatic, simplistic view of the problems of the industry, which placed all blame with the 'bad'employers. Attention was focused on individual employers, who were selfish and unjust. Such men were in sharp contrast, it was believed, to the 'old world' employers who had cared less about their personal profits and more about their trading reputations and honour, as well as the condition of their employees.[61] During the dispute at Rodgers in 1892, a leading trade unionist attributed the cause of the friction to attitudes of the managing directors; things would have been different in 'the old days': "He could not think that Mr. Maurice Rodgers, if left to himself, would have allowed the present state of things to come about".[62]

Finally, compounding all the divisions and obstacles to the clear conceptualization of industrial problems which the elitism of the skilled and the small masters created, was the further fundamental difficulty of the disunity which resulted from the general physical dispersion of the workforce. It was extremely rare to find workers concentrated in large numbers under one roof, executing similar tasks, for one employer, for long periods. In 1889, it was recognised by a factory inspector that "the organization to keep together 1,000 men and women who work for one common object but who reside all over the community, is very difficult and great".[63] However, according to the same inspector: "from my experience, I find that when the outworking

system is in existence there is no cohesion between one workman and another; that one outworker goes into the office by himself, is talked to by himself by his employer...Suppose the employer employs 100 outworkers, which is a very common thing, he treats with them individually. If they were all employed in, no man gets a deduction without its being known to the 99 inside; the 99 of course, are opposed to it all at once; self-interest makes them opposed to the action of the one man. But with an outworker, it is not so; having agreed to a deduction he can go away, and the 99 know nothing about what price he is going to take; and therefore the outworking system is responsible for the want of cohesion".[64]

Dispersion was horizontal, related to trade group, firm and workshop; but also vertical, according to age, sex, skill and status. It was therefore an almost insuperable task to weld workers together; to create a group consciousness and to put a stop to the practice of individual bargaining.[65] Outworkers suffered particularly badly from their isolation and consequent weakness. They were the first workers to be dismissed when trade slackened, were subject to more severe rules concerning notice and deductions, and were generally least able to resist employers attacks on their position.[66]

The end of this period however, did witness significant moves towards the clarification of the labour/capital divide, and a clearer and more united conception amongst the workforce, of their role and position in this divide. These changes, like those assisting the growth of more inclusive, federated unions in these trades,[67] were the result of the reality and realization that virtually <u>all</u> workers in these trades were becoming poorer and overworked.

In the Birmingham metal trades, unity was forged on enhanced class consciousness, as foreign competition and mechanization created a factory-based system dependent on factory discipline, with little place for the former small master, who was forced into the wage laboured ranks of his former employees.[68] In Sheffield, whilst mechanization, foreign competition and deskilling were also powerful forces, resulting in the incorporation of some small masters into the growing number of self-contained factories,[69] outwork and subcontracting and the independent production of a huge range of goods, remained central to the production of cutlery. Thus, any polarization of wage earners and employers, which was never as acute in Birmingham, was

based on the men's recognition that their growing poverty could only be halted by radical changes in the traditional structure of the industry. All workers, even those with considerable skills and those who were small-scale employers, were suffering as a result of the excessive competition and declining working conditions which were brought about by the traditional structure of the industry. 'Independence', 'raising oneself', being a specialist and ones 'own master,' were realized to be outdated and meaningless ideals in trades where "there is always a scramble for corporation and other scavengers jobs".[70] Demands grew for changes which would dismantle the entire traditional structure of the industry - "let us leave the old hereditary customs and put workmen upon a different system",[71] until by the period immediately before the First World War, unionists were demanding changes which would ensure a living wage to bring cutlery workers up to "efficiency rate".[72]

In many ways these changing perceptions reflected the twists and turns of the growing national debate on the so called 'sweated trades'.[73] Employed originally in the 1840s and 50s to describe the awful conditions under which London tailors and shoemakers worked, 'sweating' came to denote any employment which involved low pay, long hours and insanitary conditions, in premises which were frequently unregulated. Although Kingsley in the 1860s, associated 'the sweating system' with a subcontractor, who was typically a villainous character, and often a Jew, by the 1880s sweating was no longer seen as a 'system': the House of Lords Select Committee on the Sweating System saw the subcontractor as consequence, rather than a cause of the problems of sweating. Whilst considerable debate still centres on whether the 1880s did in fact mark a turning point in the definition and estimation of 'sweating',[74] by the early 1900s, new solutions to the problem were being advocated. Sweated trades came to be seen as 'parasitic' on other industries and on the community at large, in the damage they inflicted on the physical efficiency of the individual and the nation. Thus, such concepts as the minimum wage and the national minimum were advocated as possible solutions, the debate culminating in the creation of the National Anti-Sweating League and finally the 1909 Trade Board Act which created wage fixing boards in six sweated trades.[75] This focus of national debate and attention must have affected the cutlery workers, helping them to rethink and redefine their problems and aspirations.

Thus, for most of this period, the traditional handicraft structure of the cutlery trades, as well as blurring the division between labour and capital, divided both workers and employers amongst themselves, and made the occurrence of any clear-cut, large-scale dispute very rare. However, aspects of this structure, particularly the antiquated procedures by which payment was regulated, had further significant effects on the pattern of industrial relations in the cutlery trades. It will be argued that such features as deductions from gross wages and archaic piece price lists which reflected the peculiar structure of these trades, somewhere between handicrafts and modern waged labour, furthered sectionalism and if not causing disputes, hampered their quick and easy settlement. Nevertheless, as with the overall framework of the industry, the workers came to favour modernization of traditional methods of payment, which they realized were an impediment and not an aid to their prosperity and status.

Wages were calculated according to price lists which were both old and complicated. Many dated back to the early 19th century,[76] and varied enormously according to the particular trade,[77] and to the quality, type and size of the product.[78] Lists were then further complicated by the addition of 'extras', or supplementary charges for fine or fancy work which improved the product.[79] Moreover, whilst alterations took place according to percentage charges in price lists - for example a 5% increase or decrease, according to good or bad trade - these alterations were also modified according to the strength of a union,[80] the quality of the work,[81] and the standing of a firm.[82] In fact the sheer confusion of these lists forced many firms to adopt their own simplified price lists, which was a further factor compelling the men to make individual bargains.[83] This was compounded in the earlier part of this period by the efforts of the most skilled workers to maintain the large wage differentials which separated their high quality work from that of less skilled cutlers.[84] Wage differentials increased with the expansion of semi-skilled employment, much of which received low datal wages,[85] but overall, real wages fell considerably.[86] As wage rates declined, efforts to implement more standardized, equalized rates increased, often with the consent of the larger, better paying houses, and individual bargaining was strongly discouraged and condemned.[87]

The problems facing attempts to enforce comprehensive, standardized price lists were however daunting, not least the re-education required to discourage the men from making individual bargains. Whilst ever the industry continued to manufacture highly specific, individualistic products, price lists were forced to remain detailed, segregated and complicated.[88] Indeed, the mere fixing, let alone enforcing, of a standard rate, presented enormous difficulties. The 1908 Fair Wages Committee, when it investigated modes of establishing a standard rate for government contract work, recognised that there was no accepted trade union rate in these trades, and moreover, the trade societies represented insufficient workers for their rates to be deemed as 'standard'.[89] The commissioner could only conclude that "the trade is a very complicated one, and...it is extremely difficult to arrive at any decision as to what is the current rate, the process of manufacture differing so much at each firm, and the number of operations being so great".[90]

A further traditional, handicraft remnant of the industrial structure, which had once been valued by the workers as a symbol of their 'independence' and distance from the status of mere wage labourer, were the deductions from gross wages for the rent of work space, tools, power and necessary materials. Although originally negotiable, these deductions had, in reality, been fixed and imposed for decades.[91] This did not however, prevent them from being vague and somewhat discretionary in their precise value and application, dependent upon the relative strengths of employers and workers. The imprecision of these deductions is evidenced by the various court cases which were undertaken to define their precise legal status.

In 1875, workmen at Rodgers took the company to a court of arbitration to test the legality of deductions for 'file money'. The spring knife cutlers argued that the 1d. in each shilling they received as 'file money' was a right, stemming from an old agreement according to which, the men provided their own files and were paid 1d. in each shilling, towards their cost. The company claimed that the 1d. was a gratuity, generously bestowed by them when trade was good. Arbitration vindicated the men's position: whilst ever the 1810 and 1824 price lists remained operative, file money had to be paid, because these list prices allowed for it.[92] Once in a position of

strength however, in the poor trade of 1877, the company stopped the file money and the unions could do nothing.[93]

Again in 1907, the pen and pocket blade forgers union took Rodgers to court to prove that the company charged "unreasonable" sums in rent, for troughs which, because of illness, men failed to use. Once more, these deductions, which were normally verbal understandings, were found to be unreasonable and illegal, leading many firms to adopt formal written agreements to clarify these customary understandings.[94]

Furthermore deductions, as they varied enormously in type and value, according to the trade, the item produced and the relative strengths of employers and workers, were a further source of division amongst the men. Grinders, who occupied most space, and used most power, were always charged the heaviest sums, paying not only rent for their trough, but normally finding all their own tools and materials.[95] For forgers, deductions were less of a burden: charges were normally only made for gas, the price of which differed with the season.[96] Cutlers were charged for gas in winter, for the rent of their 'side'- normally 6d. per week - and sometimes for their tools and materials, when these were provided for them by their employer.[97] Outworkers provided themselves with space, materials and tools. Although receiving the same piecerates as inworkers, price lists normally stipulated that they should be allowed an additional 1d. in each shilling as 'tool money'. The outworkers however, bring disorganized and weak, frequently failed to realize these extras.[98] When tools were provided by employers, deductions ranged from 5 to 40% of earnings.[99] Thus, the effects of weakness and disorganization were cumulative in these trades: those men who were members of reasonably effective unions were less troubled by deductions, whilst the weakest workers were unable to resist their enforcement and extention, which rendered them even weaker.[100] It was broadly acknowledged that "The men who are members of trade societies do not take these deductions without acquainting the officials of their union, and they defend them and prevent that. Employers do not attack trade union members , so far as deductions are concerned as they do other men, and for that reason".[101]

Trade union opposition to these deductions was long-standing: in 1892 the Webbs identified them as the major source of grievances in

the grinding trades.[102] The Royal Commission on Labour found that most workers would have preferred to earn a net piece wage, employers providing all tools and materials.[103] Such reforms were still being demanded in 1907.[104] Employers were also accused of profiteering from the system in other ways. It was complained that rent was charged when no other work was provided by the employer, and even when premises were closed for stocktaking or holidays. Such charges, when there was no work available, forced men to accumulate large debts.[105] Unionists also claimed, but could not prove, that some employers made handsome profits from the excessive charges they imposed for deductions, sufficient infact, to cover the upkeep of the factory and the wages of the engine tender.[106] Employers vigorously denied these charges, asserting that the only advantages gained from the charging of deductions, were through the improved habits of the men: they became more frugal, and wasted less materials and fuel.[107]

Despite the depth and long duration of these grievances, the men were too badly organized and segregated to undertake positive action to put an end to deductions until the very end of this period. Public meetings were held to discuss deductions during the organizational spurt of the early 1890s, but nothing practical resulted.[108] A further general meeting was held in the boom year of 1901, but witnesses before the 1907 Departmental Committee on the Truck Acts, admitted that the unions were both poorly informed on their legal rights with regard to truck agreements, and powerless to implement change.[109] In their defence, union leaders cited the enduring difficulties encountered in attempts to change practices which, having grown up over long periods, and become customary, were hard to define, much less dismantle.[110]

The conclusions of the 1907 Committee came as a source of encouragement and impetus. Employers, along with the facory inspector claimed that the deductions, being an accepted and established trade custom, were so deeply ingrained, that their alteration would dislocate the whole structure of the cutlery trades.[111] They were adamant in their belief that the workers were too independently minded and habituated to their semi-autonomous status to ever accept the regime of factory based labour: deductions were the price paid for this independence.[112] The commissioners recognized the difficulties which

the adoption of a system of net wages would involve: primarily the regularization of employment in private factories, which would push more men into the public and semi-public sector, where the implementation of the net wage system was virtually impossible.[113] However, the commissioners did recognize and agree that deductions for materials, tools, standing room, light and heat should be made illegal, and recommended their abolition.[114]

The increasingly focused and vocal agitation to end deductions was a product of the trades realization that their 'independent' status within the traditional structure of the industry was now an anachronistic source of disadvantage, not benefit. Their declining status was frequently admitted in the posing of such rhetorical questions as "Did you hear of an engine-driver paying rent for his engine, or a quarryman for his quarry, or a clerk for his desk?"[115] Such burdens, they believed, were not only incommensurate with their continued skill, but a source of their poor remuneration and difficulties in sticking together and holding out in disputes. "You may search the country o'er, and you will not find a body of workers employed in an industry demanding physical strength, skill and judgement, so burdened with the expenses of production which rightly belong to capital, and at the same time so ill paid".[116]

Thus, between 1909 and 1913 various successful, but quite easy struggles were fought by the individual unions to eradicate the application of deductions to their trade. Successful protests were mounted against the charges for rent at wheels which were shut or broken,[117] and against the non-payment of tool money to outworkers.[118] Similarly, by 1911, most unions had obliged employers to provide all the tools required by their inworkers.[119]

The final significant cause of industrial disputes, which was another traditional, handicraft remnant, which had been gradually distorted by the employers, in their favour, was the practice of counting more than twelve items as a dozen. Originally twelve and a half, thirteen or fouteen blades had been counted as a dozen to allow for 'wasters' or blades that were spoilt in the process of production. The extra count ensured that any spoilt blades could be replaced out of the extras, rather than necessitating the production of another dozen, just to replace one 'waster'. However, 'wasters' gradually

came to be charged on top of these extra counts, and whilst improved production techniques virtually eliminated 'wasters', the extra counts remained.[120] Once more, these counts differed "according to the bargain",[121] or the strength of the men involved.

As part of their general opposition to deductions, the trade unions mounted a vigorous campaign against extra counts, claiming that they represented "the old world employers' idea of speeding up".[122] Manufacturers denied this: overcounts were said to be allowed for in the price lists, which were altered accordingly; demand for their abolition was merely a tactical and emotive way of demanding a wage increase, shielding "behind an appeal to the eighteenth century".[123] However, with the excellent trade and enhanced unity and vision which marked the period 1911-13, most unions experienced little difficulty in obtaining price lists in which twelve items were defined as a dozen.[124]

Conciliation and Collaboration

Throughout the period under consideration, the peaceful settlement of disputes and joint action of labour and capital, were preferred to offensive or militant action. Primarily, the impetus behind this preference came from the men, as a result of their continued belief in the traditions of guild co-operation,[125] the recognition of their weakness in disputes, and the efforts of the unions to unite with 'respectable' employers to marginalise the undercutting small masters. The whole structure of these trades, with their small production units, close personal ties, quality concerns, and traditions of social mobility, was more amenable to negotiation and peaceful accommodation than conflict. In line with their general antipathy towards trade unionism and their staunch individualism, employers although uninterested in formal channels of conciliation and arbitration, were keen advocates of factory paternalism and close relations with their own workers. Overall, the cutlery trades are notable for the extent of the co-operation between masters and men, and the readiness to take steps towards some measure of joint regulation of the industry.

The commitment of the union leadership to conciliation is well-illustrated in their attatchment to the local Liberal party,[125] and also through the policies of the S.F.T.C., an organization which was

dominated both numerically and ideologically by the cutlery trades.[127] From the early 1870s the S.F.T.C. was pressing the Chamber of Commerce to join with it to form joint boards of conciliation and arbitration.[128] The employers however, despite the influence of A.J.Mundella, the champion of organized arbitration, were unwilling to participate in such a scheme.[129]

Trade unionists who represented the trades before the Royal Commission on Depression, bemoaned the indisposition of their employers towards conciliation, a policy which they believed would have helped to contain and resolve the merchandise marks scandal.[130] The Master Cutler and cutlery manufacturer, Charles Belk was dismissive of such action,[131] but such talks did finally take place when the scandal reached its peak, and the manufacturers were forced to take action to defuse the situation.[132]

By 1894, the same unionists had become even more fervent supporters of conciliatory techniques. This commitment was basically moral: one party in its time of strength, should not take advantage of the weaker.[133] Rarely were these beliefs formulated into precise, practical, workable schemes,[134] but employer hostility was once more cited as the major obstacle to implementation.[135]

The S.F.T.C. was a similarly persistent advocate of conciliation, consistently passing resolutions to this effect, although their schemes for boards of conciliation and arbitration were rejected by the T.U.C. in 1892.[136] The S.F.T.C. was one of the few labour organizations which accepted with alacrity the objects of the Industrial Union of Employers and Employed in 1895, but the organization soon failed through lack of support.[137] By 1908 there was still no organization for conciliation or arbitration in existence,[138] but despite the growing militancy of the pre-war years, the S.F.T.C. remained pledged to such ideals.[139]

As trade unionists were ready to point out, the employers were never convinced of the value or relevance of such negotiatory procedures. Boards of conciliation challenged and threatened the intense individualism, secrecy and rivalry of the cutlery manufacturers. One employer "thought that the businessmen of Sheffield were able quietly and in a friendly manner to settle any difference they might have..." without the need to "consult with their rivals".[140] Another pocket knife manufacturer refused to submit a dispute to a panel of employers

and employees because he stated "I am not going to teach competitors my business".[141]

In practical terms however, there was considerable evidence of joint action, particularly in the sphere of the general regulation of the industry, rather than specific labour/captial issues. Considerable negotiation and discussion surrounded the framing of the regulations governing the grinding of metals, introduced in 1908,[142] the defence of the 'Sheffield' trade mark,[143] and the definition of what constituted a 'hand forged' piece of cutlery.[144] The rate of payment for government contract work was also debated, although employers were never keen to adopt a fixed, standard, identified price list.[145]

More readily subscribed to by employers, were joint ventures designed to promote Sheffield cutlery, through its reputation for quality and workmanship, to the rest of the nation and the world. Typical enterprises were industrial exhibitions like those organized by the London Cutlers' Company in 1883, [146] and the Sheffield Cutlers' Company in 1885.[147] In 1885, local notables sponsored the exhibition in an attempt to quieten the criticism and fears which surrounded the merchandise marks scandal: "the exhibition will give a splendid opportunity to Sheffield workmen to prove that they are still celebrated for skilled labour, and the display of really good work cannot do otherwise than have a most beneficial effect on the local industry...The exhibition will be a practical and conclusive answer to those carping critics who have been too ready to say that Sheffield has been tardy in the modern race for manufacturing supremacy".[148] The traditional predilections of the men, their desires to produce 'the best', were used by manufacturers to boost trade. Prizes were awarded, and the exhibition which attracted enormous public interest, was opened by Prince Albert.[149] However, the number of entrants was not large,[150] and various cutlers complained that the prizes were too small to cover the expenses incurred in production.[151] One prize winner declared the exhibition to be the work of one manufacturer, J.E.Bingham, and not the Cutlers' Company who "as a body, never took up the matter with energy until he opened his purse, and a prince was coming, and then they seized the opportunity for personal show".[152]

A similar attitude pervaded the opening in 1878, of a subscription fund to finance the visit, by nineteen workingmen who represented the Sheffield trades, to the Paris Exhibition. It was intended that the

men should learn from, and report on the goods on view, but the six cutlers were condemned for their unintelligent and uncritical reports, which merely applauded Sheffield's supremacy.[153]

By far the most widespread and apparently successful mode of cementing ties and co-operation between masters and men was however, through the paternalism and philanthropy of individual employers and firms. The older and more esteemed a business, the greater the likelihood that it would invest considerable time and effort in caring for and cultivating a loyal and able workforce.

Joseph Rodgers was perhaps the most assiduous promoter of cordial relations with its workforce. From 1863 onwards, the firm held an annual athletics competition for the men, at which there were over £100 worth of prizes to be won, and normally over 6000 spectators.[154] An annual gathering also took place at the Surrey Street Musical Hall. Maurice Rodgers, head of the company in 1898 "was convinced that such gatherings were conducive to that proper understanding and goodwill between emmployers and employed which was needful and should exist".[155] Such events were occasions for mutual congratulation. The representatives of the workmen would express their pride in the firms achievements, and their gratitude at being employed by such a house.[156] When the Prince of Wales visited Rodgers in 1875, a celebration dinner was held to mark the occasion, at which 800 employees and friends of the company were present. The relations between labour and capital were described in the following terms:"In this firm, there is more of the personal tie between employer and employee than in the newer houses, and from the highest to the lowest, Mr. Newbould is respected and loved. By his action he has proved that he has the best interests of the workmen at heart".[157] In a letter which appeared in the Sheffield Independent, the workers thanked Rodgers for the occasion:"We have always been proud of the honourable distinction which the name of Joseph Rodgers and Sons has obtained throughout the world and we feel that the success of the firm in future greatly depends upon the good feeling existing between employer and employed".[158]

A recurring feature of the various exchanges of 'good will' which took place between the management and workers at Rodgers, was the pride in, and respect accorded to the long service of workmen, and the service of whole families at the firm. At the 1870 sports day, the worker who presented the men's address had been with the firm for

56 years. His father has been employed by Rodgers for 40 years, and he had three sons, four grandsons, and three nephews, all of whom worked for Rodgers.[159] In the 1911 publication, Under Five Sovereigns, the firm printed a photograph, with accompanying names and lengths of service, of the 36 workmen who had been employed for more than 50 years.[160] The firm had always been proud of the loyalty of its craftsmen,[161] and was rewarded by the continued allegiance of a section of the workforce, who refused to heed the demands of the unions to strike at the firm.[162]

Similar demonstrations of paternalism were the invitation of large numbers of workers to the celebrations marking the election of their employer to the position of Master Cutler, or to other family festivities. In-coming Master Cutlers and their wives received generous presents and praise from their workers,[163] and the celebrations were used by employers to reaffirm friendly relations, to issue 'pep talks', and even veiled ultimatums. S.G.Richardson, elected as Master Cutler during the industrial militancy of 1889, used his celebratory dinner to show that "it was possible for employers and employed to go on mutually respecting one another for a long term of years, without realising the disastrous effects of such strikes as those which were brought before their notices so prominently at the present time...they had always been willing to meet the other in a conciliatory spirit. They had never required the services of any outside people to deal with the difficulties that might arise from time to time. (Cheers)".[164] Master Cutler Robert Belfitt, used his celebration to tell the employees of George Butlers that "it was the duty of the manufacturers and workmen to place themselves abreast of the times...The time had gone by when a firm could prosper upon prestige obtained in ancient days. The excessive competition demanded that employers and workmen alike should be able to deal with things of today rather than those of the day before".[165] The custom of entertaining workers might be maintained, but generally, custom and tradition were being depreciated. A.J.Hobson, in 1902, used his celebration to warn employees, and enlist their support behind the changes which were to come: he "expressed the hope that the goodwill now existing between employers and employed would long continue. If the firm were to keep up to the front, they must give him their best goodwill and assistance in the use of new appliances and new methods, and not say that because a

thing was good enough for their fathers it was good enough for them".[166]

Employees were also invited to such family occasions as the coming of age of the employer's sons,[167] whilst some notable manufacturers remembered select workmen in their wills.[168] The obviously paternalistic reasoning behind such gifts was illustrated by W.Hobson's gift of £150 plus £700 in annuities, to his workmen, a fact quoted by his son, when his father was posthumously accused of being an anti-unionist and underpayer.[169]

In contrast, indications that labour/capital relations were falling into a less familiar pattern, governed by economism rather than paternalism, were rare. Summer day trips, financed by the employer, although common in the prosperous early 1870s,[170] declined sharply thereafter. In 1873, the Sheffield Independent, commenting on this trend declared that the labour/capital relationship was "becoming one of contract pure and simple, the employer seeking to get the most efficient service at the lowest cost, and the workman is naturally endeavouring to sell his labour to the most remunerative market".[171]

Similarly, there is scattered evidence of a more class-based hostility in trade union criticism of the increasing extravagance of their employers, their luxurious homes, and their lack of concern for the plight of their workers. Many were accused of placing their love of money before their concerns for their trading reputations, the quality of their work and the livelihood of their employees.[172] Robert Holmshaw, for example, believed that if manufacturers' complicity in the merchandise marks frauds "did not set class against class, it ought to".[173]

However, such hostility and abandonment of the traditions and ideals of close, congenial ties between menagement and workers, were exceptional. Demands might be made for improved or changed conditions, occasional strikes took place, but overall significant disagreements, at least in public, were rare. It is hard to disagree with the comments made by the factory inspector in 1887: "If there are any serious differences in opinion now, between employer and employed, or between the men themselves, it must be admitted that they do not appear in public. Week after week, we read in the local press of complimentary banquets and complimentary speeches given masters to men or by the men to their masters; on the other hand, we hear very little of bad feeling".[174]

Footnotes

1. For a more detailed analysis of this debate, see E.J.Hobsbawm,'Custom, Wages and the Workload in Nineteenth-Century Industry' in Labouring Men, London, 1964; and R.Price, Masters, Unions and Men: Work Control in Building and the Rise of Labour 1830-1914, London, 1980, pp.130-3. 156-8.
2. Chamber of Commerce Minutes, Feb. 1871, S.C.L.,L.D. 1986/1
3. P.P. 1892,XXXVI, R.C.on Labour, R.Holmshaw, qs.19416-9, W.F.Wardley, 19318-9, Answers to questions of Group A, pp.57; P.P. 1897, X, S.C.on Government Contracts, S.Uttley, qs.1665-6, 1699-1700; S.I.,1.9.1906.
4. S.I., 16.8.1892. The S.F.T.C. stated that Rodgers' men had been fighting a constant struggle against the efforts of manufacturers to "destroy their union", S.F.T.C., Annual Report, 1893, p.4.
5. S.I.,10.3.1874, in court, Rodgers stated that "They had referred back into the annals of the firm, back into the last century, and could not find anything like a serious disturbance between them and their men, or anything like a strike. They had never appeared before a court to try to enforce a contract against their men, and he could not tell the bench how extremely reluctant they were to appear there that day."
6. Men of the Period, Sheffield, 1896, p.60. P.P. 1908, III,Committee on the Truck Acts, 1907, A.J.Hobson, q.12421, this important employer had no desire to discuss or deal with a union: "we have always been able to arrive at an amicable settlement with our own workmen."
7. P.P. 1908, XXXIV, Fair Wages Committee, A.J.Hobson, qs.5547-8; pen blade forgers' minutes, 19.4.1903.
8. Table blade grinders' minutes, 24.11.1910, 12.7.1911, two major firms were openly hostile to union representatives.
9. Ibid., 9.4.1908.
10. Labour Gazette 1896, pp.319, 383, pen blade forgers, seeking advances struck in small numbers, at varying times. The same strategy was adopted by table blade grinders in 1897, and spring knife cutlers in 1900, Labour Gazette, 1897, p.249; 1900,pp.185, 249, 283, 313; 1901, p.151.
11. S.I., 16.8.1892, 20.4.1872, the largest disputes of the period involved 254 spring knife cutlers at Rodgers in 1892, and 100 table knife hafters at Rogers and Harrison Bros. and Howson, in 1872.
12. E.g., when the table blade grinders fought for advances in 1887-90, strikes were

held at two firms in 1887, four more in 1890, until, one by one, all firms had conceded by mid-1890, S.I.,24.5.1890, 31.5.1890. Similarly the pen blade forgers fought against reductions with action at individual firms, pen blade forgers' minutes, 13.1.1903, 27.6.1905.

13. S.I., 1.6.1872, "the want of unanimity prevents that general increase in prices which the greater cost of production necessitates." The same problems were still complained of by the Master Cutler in the Quality of Sheffield, VIII, 1936, p.62, cutlery producers should "get together and put their house in order, reducing production or increasing prices.

14. S.I., 26.9.1871, 7.10.1871, 14.3.1876, 30.3.1876.

15 P.P. 1912, II, Report of the Committee on Outworkers, W.Hobson, qs.3993, 3994-5.

16. The Hammer, 24.2.1894; P.P.1892, XXXVI, R.C. on Labour, W.F.Wardley, 19312-6, A.Fretwell, 19664, "We only wished that the masters were associated so that we could meet them."

17. E.g., the association formed in the scissor forgers dispute, S.I.,14.3.1876, 18.3.1876, 30.3.1876.

18. E.g. spring knife grinders dispute, S.I., 19.4.1890, 3.5.1890, 19.7.1890, 17.5.1890.

19. A.Fox, 'Industrial Relations in Nineteenth Century Birmingham', Oxford Economic Papers, VII, 1955, p.63; S.I., 10.2.1872, 17.2.1872, 24.2.1872, 15.1.1890; S.C.L., WDS. R 23/5, 23.6.1902.

20. S.I., 15.1.1890, 19.4.1890, 3.5.1890, in the spring knife cutlers dispute, some firms paid advances as soon as they were demanded, but other prestigious concerns, Nowills, and Southern and Richardson, refused for some time.

21. E.g., the table knife hafters fought for the advances in their trade by conducting strikes at Rodgers and Harrison Bros. and Howson, S.I., 20.4.1872. They fought a similar 'sample' battle at Mosleys, S.I., 16.8.1890. All the houses dealing in the American trade watched for the outcome of Rodgers protracted battle with their spring knife cutlers, S.I., 12.1.1891, 16.8.1892. See also R.Whipp, 'Managerial Control', p.361, leading sector firms in the pottery trades exercised importance out of all proportion to their number, which was very few.

22. E.g., S.C.L., N.V.T.8, Needham, Veall and Tyzack's Minute Book,, 1889-1906, 3.5.1893, 5.5.1893. When asked to concede to a 5% reduction in wages, the table blade grinders accused the company of paying 10% less than other reputable houses without the further 5% reduction, whilst their rents were higher than those of

most firms.

23. See Chapter 5.

24. S.I., 7.6.1875, 24.1.1891, 9.9.1892.

25. S.I., 7.4.1874, 12.10.1872, 17.10.1872.

26. Webb Mss, pp.210-12.

27. S.I., 16.8.1892, the 245 strikers at Rodgers were told by the S.F.T.C., that the wages of another 3,000 men depended entirely upon their success in this strike.

28. S.I., 10.2.1872, 19.4.1890.

29. Pen blade forgers' minutes, 17.12.1903; P.P.1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12248-59.

30. Lloyd, p.213; S.I., 11.1.1870, 3.5.1890; 4.8.1913.

31. E.g., S.I., 7.10.1871, 24.2.1872, 6.3.1872, 20.4.1872, 1.6.1872, Webb Mss, p.191.

32. S.I., 13.1.1877, 3.2.1877, 30.3.1877, 8.6.1878, 23.7.1878.

33. S.I., 24.5.1890, 16.3.1890, 23.11.1899, 30.11.1889; P.P.1892, XXXVI, R.C. on Labour, Answers to Qestions of Group A, pp.94-7.

34. Labour Gazette, 1900, pp.185,245; 1901, pp.151, 317; pen blade forgers' minutes, 4.11.1902.

35. S.I., 3.11.1911, 10.7.1913, 7.11.1913.

36. E.Hobsbaum, Labouring Men, especially chapters 8 and 10; H.Pelling, A History of British Trade Unionism, London, 1963.

37. S.I., 16.8.1890, 17.1.1891, 7.2.1883, 5.4.1883, 10.4.1883, 5.5.1883, the table blade grinders' advance of June 1890 was lost by January 1891, whilst the razor blade forgers gained an advance in 1883, on the understanding that it would be forfeitted when the new, harsher American tariff came into effect, later that year.

38. S.I., 30.3.1876, 13.5.1876.

39. S.I., 4.7.1891. See J.Zeitlin, 'Craft Control', illustrating the importance of markets, foreign competition, and the perishability or otherwise of goods, to the outcome of disputes.

40. S.D.T., 17.2.1872, at the spring knife cutlers' general meeting, it was recognised that no strike had ever been fought in this trade, which had had a beneficial outcome for the men.

41. S.C.L., N.V.T.8, short time was agreed between 16.5.1893 - 17.7.1893, and again between 23.4.1894 - 3.9.1894.

42. Ibid., at Needham, Veall and Tyzacks, the men accepted a wage reduction from May 1893 to 5.10.1893, and again from July 1894 to 3.11.1896. Pen blade forgers

minutes 27.6.1905, 5.8.1905, the men agreed with Rodgers and Websterholms to accept a 5% reduction on all work done for stock, for the duration of the bad trade.

43. S.I., 11.1.1870, 18.12.1884, 3.5.1907; P.P.1908, III. Committee on the Truck Acts, A.J.Hobson, q.12479.

44. H.Pelling, 'Labour Aristocracy' in Popular Politics; E.Hobsbaum, Labouring Men; R.Whipp, 'The Stamp of Futility: The Staffordshire Potters 1880-1905', pp.130, 141-2, in R.Harrison and J.Zeitlin (eds).

45. C.More, pp. 16-22, genuine skill could be identified by a combination of manual skill and knowledge, in contrast to 'socially constructed' skills which were merely the attribution to workers of labels denoting them as skilled. Along with discretion and the power to plan work, the knowledge acquired in apprenticship, or other such learnership, marked out the genuinely skilled worker.

46. Webb Mss, pp.196, 314, amongst razor and scissor grinders, subdivision of labour and the use of teams was still very limited in 1890, because of the skill which was required to practise these trades.

47. S.I., 23.9.1871, 2.10.1871, 7.10.1871, 26.4.1873, 27.4.1876, workers at the large prestigious houses often stood aloof from the union because they received better wages than most workers, or because the managements increased their wages without a dispute. Moreover, some firms, like Websterholms provided their workers with company assisted sick, funeral and free gift societies, S.C.L., Wbs.R23, (2), (3).

48. See chap. 5, pp.152-5.P.P. 1892, XXXVI, R.C. on Labour, R Holmshaw, q.19472, "I did not wish to say it was always the employer who would beat down the price. Unfortunately, there are sometimes men who will beat it down, but they are the class of men we have to fight against - the unprincipled non-Union men". A.Fretwell, q.19820, felt that there would always be "unscrupulous men, ready and willing to take " low payed work.

49. Letters, S.I., 24.8.1892.

50. S.I., 20.8.1892, letter from Tom Newton, secretary of the spring knife cutlers union.

51. S.I., 31.8.1892.

52. S.I., 18.8.1892, 27.8.1892, 20.8.1892, letters from workers and team leaders at Rodgers denying the accusations of 'sweating', and telling the S.F.T.C. to stop meddling were countered by replies from the union and S.F.T.C.

53. The Metal Worker, Vol.II, no.15, March 1908, p.71.
54. Ibid.
55. S.I., 6.5.1890, 17.7.1890; P.P. 1890, XV, S.C. on the Merchandise Marks Act, 1887, C.Hobson, qs.1300, 1389, 1503-4.
56. S.I., 6.5.1890.
57. S.I., 8.5.1890; J.A.Schmiechen, Sweated Industries, pp.189-90, "outworking resulted in the embourgeoisement of some workers". See also R.Whipp, 'The Stamp of Futility: The Staffordshire Potters, 1880-1905', p.126, in R.Harrison and J.Zeitlin (eds).
58. G.Crossick, pp.53-9; R.Gray, p.3; J.Foster, Class Struggle and the Industrial Revolution: Early Industrial Capitalism in Three English Towns, London, 1974, p.234; A.Fox, pp.60-62.59.
59. P.P.1889, XIII, S.C. on Sweating, S.Uttley, qs.24710-7, 27852-3; S.I., 27.3.1889, 30.3.1889, 16.4.1889.
60. P.P. 1889, XIII, S.C. on Sweating, C.Law, qs 25046, 25037, 25091, W.J.Davis, q.25350; A.Fox, pp.64-5, "the public in its careless ignorance, paid whatever the lowest price happened to be without troubling to consider whether such a price paid the employer a 'reasonable' profit, and the workman a 'fair' wage. The defenceless workman, the struggling employer, were at the mercy of the irresponsible buying public."
61. S.D.T., 7.2.1872; see Merchandise Marks Scandal, chapter 3, pp.
62. S.I., 16.8.1892.
63. P.P. 1889, XIII, S.C. on Sweating, W.J.Davis, q.25385.
64. Ibid, q.25326; J.A.Somiechen, Sweated Industries, p.189, in the clothing trades there was a high degree of disorganisation and stratification, "based on an intense labour competition, on decentralised methods of production, and offering quasi capitalist status to many workers."
65. S.I., 2.121911, 7.11.1913; P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, q.19391.
66. Pen blade forgers' minutes, 27.6.1905, 29.8.1905; S.I., 27.3.1889, 8.4.1875, the union recognised that in dismissing the outworkers first, in their 1875 dispute with their cutlers, Rodgers were commencing "with the weakest of the men, who they could dismiss at a moments notice. It was getting in the thin edge of the wedge."
67. See chapter 5.
68. A.Fox, p.67.
69. See chapter 4.

70. S.D.T.,4.8.1913; S.I., 29.11.1911, "many skilled men in the cutlery trades have welcomed jobs as scavengers or the like, rather than continue on the miserable pittance that has fallen to their lot. 'To be a tram conductor and particularly a motor man' to quote one union official, 'is to be promoted to the aristocracy of labour so far as they are concerned.'" See also S.I., 11.1.1912, 10.7.1913, 4.8.1013; R.Price, Labour in British Society: An Interprative History, London, 1986, p.93, "The mid-century distinctions between respectable and non-respectable, skilled and unskilled, were essentially status identifications. Those of the late 19th century rested upon economic criteria that were linked more explicitly to class identification: skilled and unskilled, union and non-union. It was a partial reflection of this that the localist, sectionalist and exclusionary features within working class organisation and action tended to diminish."
71. S.I., 26.1.1886.
72. S.I., 10.7.1913, 24.11.1911; S.F.T.C., Annual Report, 1914, p4; P.P.1908, XXXIV, Fair Wages Committee, R.Holmshaw, q.2576.
73. For details see E.P.Hennock,'Poverty and Social Theory in England: The Experience of the 1880s' Social History, I, 1976; H.Lynd, England in the 1880s, New York, 1945; G.Stedman Jones, Outcast London; J.A.Schmiechen, Sweated Industries; D.Bythell.; pp.203-54.
74. Ibid., it has been argued that the report of the 1889 Select Committee, in favouring sensible trade unionism and the plugging of loops in existing factory and educational legislation, represented no new departure from traditional understandings.
75. R.C.K.Ensor, 'The Practical Case for the Legal Minimum Wage', Nineteenth Century and After, LXXII, 1912; C.Black, Sweated Industry and the Minimum Wage London, 1907; D.Bythell., pp.233-5.
76. Lloyd, pp.287-8, in 1913, table blade hafters had lists of 1846 and 1859 respectively. Webb MSS, pp.201,314, razor blade forgers and scissor grinders had 1810 and 1844 price lists, respectively.
77. E.g., razor blade and table blade forgers were paid according to the antiquated system of 'day' work, a 'days' work being the amount of work which used to be done in a day. However, with improvements in the preparation of steel, and in tools and machinery, it became possible to complete much more than a 'days' work in a day, Lloyd, p.291, Webb MSS, pp.201-3, 276. Other trades, e.g. scissor work board hands, appeared to receive very low wages, according to

decrepit price lists, but the introduction of machinery enabled them to complete a far greater amount of work than that intended when the lists were drawn up, Webb MSS., pp.298-300.

78. Pen and Blade Forgers Price List, 1891; N.A.U.L. Table and Butchers Blade Grinders' Association, Price List, 16th October, 1913; Lloyd p.291, some trades had separate price lists for the higher quality 'country' market, and the lower quality foreign market.

79. S.D.T.,4.11.1911, S.I.: 3.3.1876.

80. P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19403, 19414-5, union men maintained their price lists better than non-union men, differences between the two could amount to 40% of total wages.

81. Webb MSS, p.147, deductions on better quality cutlery were never as great as those on cheaper, usually foreign cutlery.

82. See pp.183 ,P.P.1908, XXXIV, Fair Wages Committee, R.Holmshaw, q.2489, generally the larger, more prestigious houses were more likely to pay good wages.

83. Webb MSS., pp.147, 317, 314, the scissor grinders' price list was a "bulky and formidable looking volume;" Lloyd, p.301; P.P. 1908, XXXIV, Fair Wages Committee, R.Holmshaw, q.2478, low specific rates were often enforced for government contract work.

84. S.I., 4.11.1872, 24.2.1872, 4.3.1876, 14.3.1876, most unions demanded for greater increases on their high quality work than on their already poorly paid low quality work. For wage rate details, see appendix 5.

85. See appendix 5; P.P. 1892, XXXVI, R.C. on Labour, Answer to questions of Group A pp.14-15, moreover, many workers, particularly those who were less skilled or in teams, were paid weekly, or by the day, task or week. P.P.1912, II, Report of the Committee on Outworkers, W.Hobson, qs.4069-82, 4108-14, it was impossible to calculate an 'average' wage in these trades, nor were wage rates established with a view to how much a man should earn per hour; wages varied enormously, according to the trade - cutlers were still paid less than grinders and hafters - and, most importantly, according to skill.

86. See chapter 8,pp.266-9 ; appendix 5.

87. S.I., 10.3.1913, "personal bargaining must cease," "if a price for work was wanted, they must give a combined price." P.P.1908, XXXIV, Fair Wages Committee R.Holmshaw, 2474-84; P.P. 1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, q.12074.

88. S.C.L., WOS R 23/4, 25.9.1902, 29.9.1902, the revised price list for forging, marking and hardening pen and pocket knives was still extremely complicated. S.C.L., WOS.R 23/5 and /7, the razor grinders' 1912 revised price list, that of the pen and pocket blade forgers of 1912, and the table grinders' list of 1913, were also very detailed and complicated.

89. P.P. 1908, XXXIV, Fair Wages Committee, R.Hornshaw, qs.2525-2530, 2586-99.

90. Ibid., G.H.Shaw, q.2659.

91. P.P.1908, III, Committee on the Truck Acts, A.J.Hobson, q.12391.

92. S.I., 4.3.1874, 17.4.1874, 18.4.1874.

93. S.I., 18.4.1874, 3.2.1877.

94. S.I., 3.5.1907; P.P.1908, III, Committee on the Truck Acts, 1907, A.J.Hobson, q.12479.

95.

Trade	1889 [a]		1907 [b]
	Rent and Gas	Materials	Rent
Table Knife Hafters	1s.6d. - 2s.6d.	6d.	1s.3d. - 1s., plus 6d gas
Pocket Blade Grinders	3s. - 4s.	1s.6d.	4s. - 3s.6d.
Table Blade Grinders	5s. - 7s.	-	8s. - 6s.6d.
Spring Knife Cutlers	1s. - 3s	1s.	

Source: a. P.P.1889, XIII, S.C. on Sweating, S.Uttley, qs.24742, 24803, appendix O, pp.708-9.

b. P.P.1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12060, 12082, A.J.Hobson, 12404.

P.P.1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19506-13, 19512-3; P.P.1908, III Committee on the Truck Acts, 1907. J.Dodgson, q.1157, A.J.Hobson, q.12404; Lloyd, p.222.

96. P.P. 1908, III, Committee on the Truck Acts, 1907, A.J.Hobson, q.12404, R.Holmshaw, qs.12082, 12226; S.C.L., N.V.T.7.

97. Ibid., Lloyd p.223-4.

98. A.J.Hobson, qs 12394-5.

99. Ibid., J.Dodgson, q.1019; A.J.Hobson, q.12406, R.Holmshaw, q.12081; P.P. 1892, XXXVII, R.C. on Labour, A.Fretwell, q.19643..

100. Ibid., W.F.Wardley, 12344-9.

101. Ibid., q.12310.

102. Webb MSS. p.149

103. P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19491, 19560-69, 19576-8.

104. P.P.1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12085, 12119, 12162, 12169.

105. P.P.1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19442, 19458-62, 19488-91 19579-81, A.Fretwell, qs.19639, 19640-3; P.P.1908, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12078-80, 12085, A.J.Hobson, qs.12334, 12337.

106. P.P.1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, qs. 12191-2, 12198-9, 12086, "The employer of a large factory draws from rents such a large sum of money that it practically pays, or more than pays, the cost of running the factory, so that it does not matter to the employer, apart from getting off his orders, of course, whether the men are working or not. Hence we have in Sheffield a system of bad management in the way the work is given out by the manufacturer, because he knows that on Saturday his rent is sure. He knows that his rent will pay for the coal and the engine tender's wages, and all the rest of it, and leave him a nice balance to the good."

107. Ibid., A.J.Hobson, qs.12406, 12409-16, 12392, 12411, 12437, 12475, Manufacturers attempted to prove that they did not profiteer, by stating that their rents were the same as those charged in public wheels, or lower, so that stable, skilled, reliable inworkers would be encouraged to stay with the firm, "there was not only no profit, but there was a distinct loss on having built that new factory that if he had employed outworkers and built no workshops, he would have been better off than with the factory." q.12411.

108. P.P. 1892, XXXVI, R.C. on Labour, R.Holmshaw, qs.19463-4, 19541-7.

109. P.P. 1908, III, Committee on the Truck Acts, 1907, R.Holmshaw, qs.12208, 12212-3, 12358-9.

110. Ibid., 12130-45.

111. Ibid., J.Dodgson, qs. 1012, 1015, 1088-93, 1109; A.J.Hobson, qs. 12421-4, 12438, 12492.

112. Ibid., J.Dodgson, qs.989; A.J.Hobson, qs. 12045-6, 12403-5, 1244-6; see also chapter 8, pp.271-4.

113. Ibid., R.Holmshaw, qs.12270-75.

114. Ibid., Report, Section 209, pp.78-9.

115. S.I., 29.11.1911, "The artisans of the East End ... would not tolerate it for a day." S.I., 17.7.1909.

116. The Metal Worker, vol.II, no.15, March 1908, p.70, ibid., p.150, "It is the rent system which undermines the conduct of the cutlery worker." S.I., 17.9.1909.

117. Table blade grinders' minutes, 14.1.1909.

118. S.I., 3.11.1911; pen and pocket blade forgers' minutes, 11.6.1907, 9.7.1912. S.Pollard, History, p.220.
119. S.I., 3.11.1911, this was obtained by the pen and pocket blade forgers and had already been achieved by razor scissor and table blade forgers.
120. P.P.1908, III, Committee on the Truck Acts, 1907, A.J.Hobson, q.12500; W.F.Wardley qs.12321-2; Lloyd, p.220.
121. Ibid., A.J.Hobson, q.12500; J.W.Dodgson, q.997, in 1907, a dozen was counted as $13\frac{1}{2}$ in the table knife trade, 14 in the scissor trade, and 12 to 14 in the pocket knife trade.
122. S.D.T., 17.9.1913.
123. Ibid.
124. S.I., 17.9.1913, 18.10.1913; table blade grinders' minutes, S.5.11.1908, 12.11.1908, 27.8.1908, 5.10.1911, Price List, 16 August 1913; S.C.L., Wbs 23/9.
125. See chapter 1,pp.6,15, and chapter 5.
126. See chapter 8 pp.
127. Ibid.,
128. Chamber of Commerce minutes, May 1875, S.C.L. LD.1986/1.
129. Ibid., Jan. 1874, S.C.L. 1986/1; W.H.G.Armitage, A.J.Mundella, 1825-1897: the Liberal Background to the Labour Movement, London, 1951, pp.318-20.
130. P.P.1886, XIII, R.C. on the Depression, R.Holmshaw, qs.1244-9.
131. Ibid., C.Belk, qs.2728-30, 2789.
132. See chapter 3, 90ff.
133. P.P. 1892, XXXVI, R.C. on Labour, W.F.Wardley, qs.19293, 19329, 19351; R.Holmshaw, q.12427.
134. Ibid., W.F.Wardley, qs.19330-5, 19353-61, 19623; R.Holmshaw, qs.19427-34, 19483.
135. Ibid., W.F.Wardley, qs.19338-42, 19351.
136. S.F.T.C., Annual Report, 1893, pp.5-6; J.Mendelson, et al., pp.43-4.
137. Chamber of Commerce minutes, Jan.1894, Jan.1896, S.C.L., L.D. 1986/4; J.Mendelson et al., pp.43-4.
138. The Metal Worker, vol.II, no.23, Nov.1908, p.243.
139. S.F.T.C., Annual Report, 1912, p.5, "While we admit that these are times when strikes seem the only effective weapon, we welcome the growing tendency to submit disputes to arbitration. It is a hopeful sign of the times that the Board of Trade has created a precedent for itself, by stepping outside the mere province of ordinary routine....Sir George Askwith has earned the

gratitude of all, by the able way in which he has conducted proceedings that in many cases have formed the basis of amicable settlement or agreement."

140. Chamber of Commerce minutes, Jan.1893, S.C.L., L.D.1986/4.

141. S.I., 4.11.1911.

142. See chapter 7 , pp. 225, 237-8.

143. See chapter 3, pp. 93.

144. Ibid.

145. P.P.1906, XXXIV, Report of the Fair Wages Committee, R.Holmshaw, q.2486, G.H.Shaw, q.2636, A.J.Hoson, q.5626.

146. S.I., 9.6.1883, 29.6.1883, Sheffield cutlers carried away most of the prizes available.

147. S.I.. 24.2.1885.

148. S.I., 24.2.1885; The Metal Industry, 27.7.1928, p.89; an exhibition of Sheffield workmanship would provide "a telling example of the value of friendly co-operation between worker and employer, and secondly it provided the possibility of sinking idividuality in the common cause." Ibid., 20.6.1928, p.636, the exhibition was intended to "show, by actual examples of work, what are the essential features which make up good quality work. The necessity of this will be realised when it is remembered that it is becoming increasingly difficult for the general public to discrimiate between good and inferior quality in some trades."

149. S.I., 18.4.1885, 26.5.1885, 17.8.1885.

150. Cutlers Company Industrial Exhibition, 1885, Catalogue, Sheffield.

151. S.I., 12.5.1885.

152. S.I., 28.2.1887.

153. S.I., 5.7.1878, 18.10.1878.

154. S.I., 3.6.1873, 18.5.1875, 8.8.1882. Wostenholms had a successful fishing club, established in 1880, and still in existence in 1945, H.Bexfield, p.28.

155. S.I., 16.3.1898.

156. S.I., 19.5.1871, the workmen's representative reported that "the firm had given more encouragement to talent and ingenuity than any other Master Cutlers in Sheffield or in the world. No doubt there were many workmen in Sheffield with good abilities, but they had not had such opportunities for developing them as had the men at Rodgers,"

157. S.I., 18.8.1875, 19.8.1875.

158. S.I.,23.8.1875.

159. S.I., 17.5.1870, 19.8.1875, 15.10.1887, 10.8.1889, 9.9.1889.

160. Joseph Rodgers, Under Five Sovereigns, pp.22-3.

161. S.I., 10.10.1892, cited an article from The Sheffield Mercury of 1840, in which it had been calculated that Rodgers 520 male employees had been with the firm for a total of over 4600 years.

162. See pp. 185-6 ; R.Whipp, 'The Stamp of Futility: the Staffordshire Potters 1880-1905.' in R.Harrison and J.Zeitlin, (eds.) pp.119-20. At large pottery firms, such as Doulton, combination was retarded by the dependence of the workers on the firms' international labour markets. At such firms, loyalty was highly prized and rewarded, "leaving the union surrounded with suspicion, and blunting its appeal."

163. S.I., 3.9.1881, 10.9.1883, 13.1.1903; S.D.T., 3.11.1889; see also R.Whipp, 'Work and Social Consciousness', p.146; and 'The Art of Management', p.385, it is stressed that paternalism could only succeed with some level of worker acceptance, not "by employer fiat alone."

164. S.I., 9.9.1889.

165. S.I., 7.9.1891.

166. S.I., 3.10.1902.

167. The Ironmonger, 30.11.1871, p.1009; S.I., 22.7.1895.

168. See appendix 3, George Wostenholm.

169. S.I., 19.11.1889.

170. S.I., 7.8.1871, Kitchens took their employees to Monsal Dale where there was much "singing, dancing and sporting on the green", and then on to Carver for dinner. S.I., 16.8.1870, Nixon and Winterbottom gave their workers a similar treat, but, whilst dining at Ashford, Mr.Nixon "gave a few practical remarks on the necessity of vigilance and supervision to ensure excellence of production from which arose the present exceptional prosperity of the Pyramid cutlery works."

171. S.I., 27.12.1873.

172. See chapter 3, pp. 87-9.

173. S.I., 21.10.1886.

174. P.P.1888, XXVI, Factory Inspector's Report 1887, C.5328, p.36.