

**BUSINESS STRUCTURE, BUSINESS CULTURE, AND THE INDUSTRIAL
DISTRICT: THE POTTERIES, c.1850-1900.**

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ABSTRACT.

This study examines the growth and development of the North Staffordshire pottery industry in the second half of the nineteenth century. The pottery industry of the late nineteenth century has been little studied by business historians and this thesis makes a valuable contribution to our empirical knowledge of the industry. Response to change and competitive challenge is examined at the level of the firm and of the industry as a whole, with careful attention paid to the evolution and operation of localized business networks.

A framework within which to explore these issues is developed by, firstly, considering how theories of business strategy, business culture, and the industrial district may be used to inform one another. Secondly, the business structure of the pottery industry in North Staffordshire is reconstructed for the period c.1860-1900. The structural characteristics thus revealed are related to the organizational structures of firms in the Potteries. The industry was characterized by many competing small and medium-sized units and personal capitalism throughout the period.

Strategic responses to increased competition and falling prices evolved very gradually and remained incomplete at the close of the period. Mechanization had barely commenced in 1870 and in 1914 many tasks within the industry were still carried out by highly skilled workers. The resource bases of the majority of firms thus complemented an emphasis in marketing strategies on wide product ranges and high quality goods. A detailed examination of such strategies is provided by a case study of the illustrious firm of Minton's Ltd. However, increasing external and internal competition rendered the effectiveness of this combination of strategies increasingly uncertain and from the late 1870s the industry was pervaded by a sense of crisis. In considering the causes of crisis contemporary opinion focused increasingly on the industry as a whole, and in particular on the structure of the industry, and on inter-firm relations within the industry and district. Patterns of integration within the industry are reconstructed, and change in those patterns outlined. It is shown that the behaviour of many firms in the Potteries became increasingly opportunistic at this time. Some of the external pressure for strategic or structural change was met not by change within the firm but by exploiting the responsiveness and flexibility of the district as a whole. However, some large firms were attempting to develop more innovative strategies and organizational structures, and it was such firms which attempted to build organizations representative of the interests of the business community in the Potteries. The failure of these attempts allows for further examination of business culture at the level of the industry and district.

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1: INTRODUCTION: BUSINESS STRUCTURE, BUSINESS CULTURE, AND THE INDUSTRIAL DISTRICT.

This study explores the growth and development of the North Staffordshire pottery industry during the second half of the nineteenth century. This important industrial sector, intensely spatially clustered in an urban region universally recognized as ‘the Potteries’, faced during this period a range of pressures for change. In order to study the process of adjustment and the changing characteristics of the industry a network perspective has been adopted, which, furthermore, argues that the social dimensions of business networks are as important as the economic.

The empirical backbone of the study is provided by a reconstruction of the business structure of the North Staffordshire pottery industry across four decades of the late nineteenth century. This substantial and original body of material, drawn from Pate Books and presented in chapter 2, allows for entry into a detailed examination of a hitherto surprisingly neglected sector of the British industrial economy (1). The reconstruction provides a ‘description’ of structure, and, because it is carried out over time, indicates a pattern of development, but by itself tells us little about the processes and dynamic of that pattern. A wide range of empirical material will therefore be deployed in order to develop the network perspective outlined above.

There is then, in theoretical terms, a need to develop a model of the functioning of business networks or systems, in tandem with an approach that gives full and appropriate weight to the role and influence of what may be termed business culture, the first, and ‘dominant’, of the four key themes identified by Wilson in a recent survey of British business history (2). Many of the approaches to modelling business systems or structures currently available to the business historian, whatever their virtues in countering the static, ahistoricism of neo-classical economics, require further articulation at a deeper, non-functional level. Lipartito, noting that functional models in business history very often ‘cannot account for the divergence of competitors in the same market, sharing...the same constraints’, suggests that business culture, in determining what is ‘real or rational for management’, provides ‘one of

the missing pieces to this puzzle' (3). The notion of business culture will then provide a central focus to this work, and will serve to illuminate behaviour otherwise resistant to explanation. Moreover, in considering business culture in the context of the industrial district this work begins to take up the recent challenge offered by Staber, seeking specification of the 'content of social relations (and the) mechanisms by which social structures constrain or facilitate economic action' in spatially clustered industries (4). However, the limits of a cultural approach to business history will also be noted, particularly the danger of culture itself assuming a simplistic, functional role. These network, or system, and cultural approaches to the study of the pottery industry will run parallel to and very often inform one another, but initially require separate theoretical elaboration.

As has been suggested the examination of the relationship between business structure and business culture, a relationship located both within firms and in the networks they generate, will proceed from a reconstruction of the business structure of the Potteries, c.1860-1900. What are the structural characteristics thus revealed and how may they be modelled? The North Staffordshire pottery industry of the late nineteenth century, though characterized by a wide range in the size of firms, was dominated by very many small and medium-sized enterprises. The industry displayed little concentration but was instead composed of many competing units, typically personally owned and managed. No firm or group of firms, not even the very largest, possessed market power or price leadership. In short, the structure of the intensely spatially clustered pottery industry was highly atomized, marked by a high degree of openness and differentiation. Moreover, the data makes clear that these basic structural characteristics were accentuated rather than diminished during the period under study. The industry became increasingly competitive towards the close of the century as the external environment also underwent change. The basic structural patterns of the industry are clear.

A variety of approaches may be taken to the modelling and analysis of this reconstructed business structure. Indeed, business history in general has seen in recent years a proliferation of theoretical approaches. In the late 1980s Lee argued for a closer integration of business history with new developments in economic theory, 'similarly concerned with the firm and

the market'. This, he believed, would give business history 'structure..., something which neither business biography nor entrepreneurial history could achieve' (5). At the same time Harvey and Jones predicted that the 1990s would witness a 'shift...to new or wider themes' than those suggested by Chandler's focus on internal organizational structures. Business history now recognizes that in order to pursue wider perspectives it may be possible to learn not only from economics, but also from sociology, institutional and organizational theory, geography, management studies, and other disciplines. Nonetheless, the problem of integrating theory and empirical material remains (6).

This work adopts an eclectic approach to theory in order to develop a gradually broadening focus, moving, in crude terms, from the firm to the industry and the district. The approach with the greatest immediate relevance to a study the North Staffordshire pottery industry is offered by the concept of the industrial district. In many ways, from its clustered but disintegrated structure, its multi-purpose technologies, skilled workers, and the high degree of differentiation in its products and markets, the Potteries of the late nineteenth century was 'the ideal-typical industrial district' (7). The concept of the industrial district will then be used here to inform discussion of a range of issues. However, deployment of the concept will often be critical. In simple terms, it may be said that the conditions for, or characteristics of, an industrial district pertained in the Potteries, but that many of the typically predicted outcomes of such conditions did not. Much recent work has tended to see spatial clustering and flexible specialization as positive, enabling factors, particularly for the development of regional economies. Indeed, reference has been made to the 'current euphoria for (the) organizational strategy' of network building at the local or regional level (8). It is primarily with that positive emphasis which this work takes issue, questioning the 'conditions under which business networks are likely to deliver on their strategic promises' (9). This critical stance in relation to the industrial district was suggested initially by the empirical material, in other words firms and businessmen in the Potteries industrial district, whilst recognizing many advantages in clustering, increasingly appeared also to feel disadvantaged by it in the period under study. This critique will be further developed here with reference to a range of historical and theoretical perspectives.

How, though, has the initial reconstruction of business structure been handled? The work of Lloyd-Jones and Lewis has been important in two ways; firstly, in the stress placed on the detailed reconstruction of business structures and, secondly, in further developing the methodology for such reconstructions from rateable values (RVs) suggested by Timmins (10). Their claim that the reconstruction of the ‘variegated business structure of Cottonopolis’ over time sets the ‘minimum condition for exploring business connections’ is used to guide this study of the pottery industry in the late nineteenth century (11). However, though the methods deployed by Lloyd-Jones and Lewis in their structural analysis of the Manchester cotton trade may be applied to the Potteries the findings are quite different in each case. The business structures of Cottonopolis in the first decades of the nineteenth century and of the Potteries fifty to seventy years later were both characterized by considerable variegation, unevenness, and even conflict. However, the lines of fracture ran along quite different planes in each industry. Moreover, where the cotton trade moved steadily towards the resolution of many of the conflicts inherent in its structure in the second quarter of the nineteenth century such accommodation was notable by its absence in the Potteries in the last quarter. Divisions within the business structure and culture of the Potteries did not represent, as they did in Manchester, the conflict of alternative modes of production, but were rooted instead in the different scale on which the same mode of production could be and was organized. This would suggest two inter-related conclusions. Firstly, that business networks are highly specific and differently constituted and, secondly, that firms in Manchester and the Potteries, the basic building blocks of networks, were differently ‘shaped’. Therefore, before it is possible to discuss the interconnections between the components of a business system, or the wider networks of an industrial district, it is necessary to examine the individual components. There is a need to specify the boundaries between firms as well as those of the wider network.

It is now generally accepted, however, that neo-classical theories of the firm offer little to the business historian (12). Where economic theory does not take a firm’s environment as simply given, inter-firm relations or networks are largely explored in terms of transaction costs and input-output analysis alone, and any attempt to take account of business culture would seem to preclude retention of the profit maximization assumption. Theories that focus

on business strategy are, however, of interest to the business historian. In particular, we will make use of the theories of Scott Moss (13). The usefulness of Moss's work to business history is derived largely from his concern with 'economic processes in historical time', and from definitions of what constitutes the firm and of the forces which guide firms in the formulation of strategy. Moss defines the firm as 'a collection of productive resources with organizational structure', before going on to argue for a relationship between a firm's resources and its activities, the 'resources of which the firm is composed determine the range of activities undertaken by the firm' (14). That this relationship can be strong enough for existing resources, in combination with a strong company culture, to constrain a firm from considering new areas of activity will be demonstrated in chapter 5, a case study of Mintons Ltd. However, more generally, it is clear Moss's propositions predict that strategic change will also necessitate change to a firm's resources and organizational structure. Strategy itself is determined by the conjunction of a firm's existing activities, resources and structure and the 'the broad forces which constrain firms and which create business opportunities' (15). The economic theory of business strategy is then dynamic, concerned with the process of change 'in actual firms and markets' (16).

Moss's work is of further relevance to any study of business networks, for it implicitly recognizes the interdependencies of economic activity, arguing in effect that firms are not 'natural' or immutable packages of resources and structure but that, logically, 'there is nothing to distinguish the boundaries of the firm-the specific collection of resources comprising one firm, but not its suppliers or customers-except an organizational structure' (17). However, Moss does not explore in detail the origins of those organizational structures, and in particular their social determinants. Though the boundaries between firms are clearly not fixed when so defined it appears historically that they are very often determined by powerful non-economic rationales, such as the family loyalties prominent in the personal or proprietary capitalism of the Potteries. Individual firms are defined then, in part at least, not only by their own resources and structure but also by their history, and by the resources, structures, and histories of the surrounding population of firms. The pattern of integration in an industry is as much a function of the entire population of firms as it is of strategies of individual firms. Firms, particularly those in very populous and gradually

developing industries such as pottery, will tend to adopt structures, resources, and functions that have a high degree of fit with patterns already established in the wider population. In arguing that production functions are not given but endogenous to the firm, and capable of being altered through strategic decision-making, Moss retains the firm as his principal unit of analysis.

Nonetheless, the broad framework provided by Moss will inform chapters 2, 3, 4, and 6 of this study, in which the organizational structure, activities, constraints on, opportunities available to, and strategic responses of firms in the Potteries are examined. In chapter 2, subsequent to the reconstruction of the population of firms, the organizational structures of firms in the Potteries will be introduced. The openness of the industry's structure will be shown to have been reflected in a clear bias towards personal capitalism. The industry was dominated by a mass of small, independent masters, partnerships, and inter-generational family firms. In each there was a strong identification between ownership and management. Governance and managerial style were personal according to the Chandlerian definition, and bureaucratized managerial hierarchies were extremely rare (18). In chapter 3 the constraints facing firms in the Potteries will be considered, with particular attention being paid to the role of change in the competitive environment in inducing strategic response.

It will be shown that in this period the British ceramic industry was subject to a range of constraints. Exports were squeezed, more in value than in volume, and the domestic market began to suffer import penetration as industries developed abroad and tariffs barriers were raised. These changes worked firstly to damage the financial performance of firms and, secondly, to increase the uncertainty they felt as the environment in which they operated became progressively more hostile. Uncertainty, a quality first explored by Keynes, is of great interest to Moss, and uncertainty, much of it arising from the actions of other firms in the district, undoubtedly influenced the resource and marketing responses of firms in the Potteries. This is discussed in chapters 4 and 6 respectively (19). The process of mechanization was perhaps particularly influenced by a self-reinforcing cycle of uncertainty and caution. Chapter 5, a case study of Minton Ltd., will examine in detail constraint, opportunity, and response in the context of an individual firm.

However, it will be clear at several points in chapters 2-4 that firms and entrepreneurs faced some problems that could not be addressed whilst acting alone. Contemporaries, identifying a sense of crisis at the local level in the 1880s and 1890s, related many of these generalized problems, such as over-production and excess capacity, to the structure of the industry as a whole, and to a preponderance of 'small capitalists' in particular. Thus, though a business strategy approach is of value in exploring general patterns of activity in terms of the behaviour of individual firms, there are important limits to such an analysis. Moss essentially sees only the market beyond the firm, arguing for example that a 'fundamental issue is the extent of vertical integration of individual firms, that is, the range of activities which firms internalize-and so is subject to managerial co-ordination-and the range of activities which it is left to the market to provide' (20). In fact, the uncomplicated, but resilient organizational structures of firms in the Potteries were maintained, at least in part, by insertion into highly specific, localized networks of resources, skills, information, finance, and credit. Those networks were too complex and too socialized to be characterized simply as 'the market'.

Attention to industry structure and local networks supplements and extends the business strategy approach by recognizing in those factors further potential constraints on, or resources open to firms. The most important structural/network approach utilized by this study is the industrial district model (21). It has already been argued that the conditions of an industrial district pertained in the Potteries but that many of the predicted outcomes did not. Similarly the interdependent concepts of the industrial district and flexible specialization see considerable strength and vitality residing in the flexible, disintegrated industrial structures blamed for British economic decline in the institutional rigidity thesis. The concept of the industrial district will, then, be used critically to inform discussion of the growth and development of the pottery industry in North Staffordshire. In essence, it is argued that the picture of flexible specialization has been too 'optimistically painted' by Piore, Sabel, Zeitlin and others, producing "fables" that make 'enchanted reading' (22).

Though nineteenth century observers frequently spoke of the Potteries as a 'district', the concept of the industrial district first appeared and was developed in the writings of Alfred

Marshall, drawing on detailed empirical studies of British industries. The concept has been continuously developed since then and has enjoyed a recent renaissance amongst both business historians and public policy makers in a number of countries (23). In the industrial district Marshall recognized that a range of economic and non-economic forces were at work, both the outcome of particular patterns of growth, through which industries were 'welded almost automatically into an organic whole' (24). In economic terms the industrial district allowed firms, 'even a small business', to realize 'external economies, which...were generally far more important...than those which the largest business in the world could obtain through its own efforts' (25). These economies have been termed agglomeration economies, and it was in these aspects of industrial districts that Marshall, a neo-classical economist, was most interested (26).

Marshall saw external economies as being complemented by the market co-ordination of supply and demand, 'effected without conscious effort...and especially in those branches of (industry), which are mainly in the hands of a multitude of independent businesses of moderate size' (27). On occasion, however, Marshall found automatic organization of this type usefully complemented by formal, co-ordinated institutional initiatives. Both external economies and market co-ordination were derived from a structure of vertical specialization in combination with spatial clustering, aiding the 'constant intercommunication' between independent units (28). Both automatic and conscious co-ordination were significant in that they allowed the manufacturer to be 'ever....watchful, supple and quick....turning to the best account the flying opportunities which are offered by his changeful relationship to men and things....their customers under the influence of western fluctuations of fashion' (29). Thus, to structure as a determinant of patterns of strategy and behaviour in industrial districts is added the influence of demand.

However, these economic factors were also supplemented by non-economic forces. These included those shaping the working population of a district, as well as that quality now recognized as business culture, which together played a vital role in inculcating 'an industrial atmosphere, such as that of Sheffield or Solingen' (30). The economic benefits of an 'industrial atmosphere' were to be derived largely from its role in shaping human resource

endowments, in providing a pool of ready trained and easily supervised workforce, easily accessed by a supply of entrepreneurs with an intimate knowledge of the trade. Spatial clustering created other resource pools, for example of capital and technology, that allowed small specialized firms to benefit from the economies of scale and scope otherwise reserved for large, vertically integrated enterprises (31).

In the early twentieth century then Marshall adumbrated the basic characteristics of the industrial district. The industrial district model has, however, been given new emphasis and impetus by the struggles of ‘Chandlerian’ big business over the past two decades, by a ‘preoccupation in the 1980s with.... consumer driven production’, by the historical reclamation of alternative paths to industrial success by Scranton, Ingham and others, and through the advocacy of Piore, Sabel, Zeitlin, and others (32). As Staber notes ‘Piore and Sabel’s analysis of territorially bounded networking goes beyond standard agglomeration and transaction cost reasoning by emphasizing the *qualitative* social and institutional factors which facilitate quantitative external economies of co-location’ (33).

Noting that industrial districts often have a structure of small firms which innovate and prosper ‘without becoming larger’ Sabel and Zeitlin identify three interdependent characteristics of such districts. They are, i. a ‘highly differentiated’ relationship to markets served with ‘constantly altered products’, ii. the ‘flexible use of increasingly more productive and widely applicable technology’ and, iii. the ‘creation of regional institutions that balanced co-operation and competition among firms so as to encourage permanent innovation’, the interaction of these characteristics leading firms to compete not on price but through product and process innovation. This balance of co-operation and competition is not simply economic but also takes place in the social realm and acts to mediate relationships between and within classes. Industrial districts fostered an ‘ethos that reconciled and gave immediate human content to the claims of ambition and competition on the one hand and community and co-operation on the other’ (34). Though they lay more stress on flexibility than external economies, there is nonetheless a clear continuity between the works of Marshall and Piore, Sabel and Zeitlin.

The industrial district model is primarily useful as a tool for indicating areas of enquiry. Application of the model to an empirical study will tend, for example to, lead to examination of issues such as, external economies and capabilities, patterns of behaviour, the creation and utilization of resources within the district, and the levels at which aggregation and networking occur. Indeed, it was argued even in the late nineteenth century that the North Staffordshire pottery industry possessed *collective* advantages rooted in ‘concentration of effort combined with an industrial existence of two hundred years’, yielding a ‘maturity’ that rival industries, such as that located in Trenton, New Jersey, would not attain until they too had, collectively, ‘become the seat of a corresponding investment of wealth’ (35).

However, as has already been suggested, it will be argued here that the spatial clustering of the British pottery did have significance but that during the last quarter of the nineteenth century that significance became increasingly ambiguous and hard to define (36). We return again to the unresolved problem of the conditions under which industrial districts ‘deliver on their strategic promise’ (37). Those characteristics of the industrial district which had once facilitated the growth and development of the Potteries came increasingly to act as constraints; the industry’s flexibility, embodied in its disintegrated structure, to which the distinctiveness and vitality of industrial districts are commonly tied, was principally short-term and tactical and reinforced a tendency to long-term structural and strategic rigidity. Examples of some of the mechanisms whereby spatial clustering led to long-term inflexibility will be presented in chapter 7, a reconstruction of the sub-system supplying potter’s materials. Thus, it will be argued that spatial clustering played an important role in maintaining the pottery industry’s fragmented structure and that fragmentation resulted in rigidity, a rigidity exposed by change in the competitive environment. It was the rootedness of the pottery industry’s structure, technologies, human resource endowments, and business culture in both a sense of place and an inherited and shared history which worked against both co-ordinated and individualized response to new challenges.

This study is not alone in offering a critique of current ‘euphoric’, models of the industrial district. These critiques have been arrived at from both historical and theoretical perspectives

and include, for example, the work of Scranton on Philadelphia, Elbaum and Lazonick on the British economy, and Porter and Staber on current agendas and frameworks (38).

Scranton, for example, in his studies of the Philadelphia textile trades, concludes that 'Ultimately, its very rootedness in time and place would contribute to (the) demise' of this 'regional system of flexible production', and that 'every element of the batch, flexible system' that had evolved in Philadelphia militated against reorientation (39). In the end, however, Scranton draws back from locating these constraints or rigidities squarely in the district. Instead he argues that whilst his contention that firms such as those found in late nineteenth century Philadelphia 'generate underlying rigidities that contradict and undermine their advantages....is plausible at the level of the firm....the broad vitality of the industrial district must be appreciated' (40). This is a salient point. The closing decades of the nineteenth century were perhaps a period of relative decline for the Potteries but they were not disastrous, as the new century dawned the industry was still in a position of international dominance. Nonetheless, it is clear the foundations and inherent vitality of that position still require careful investigation.

Scranton locates Philadelphia's 'broad vitality' in the near constant recirculation and utilization of the district's stock of resources, both physical and human. However, as Mass and Lazonick have argued, resources need to be developed and utilized in a 'cumulative and continuous process' in order that competitive advantage be sustained (41). The recycling of existing, often aging, resources characteristic of Philadelphia also occurred in the Potteries. However, in Staffordshire, in the presence of numerous but not necessarily appropriately skilled potential entrepreneurs, this process was as protective of a diffused inefficiency as collusive barriers to exit were of individual inefficient units in other industries (42). Indeed, the multiplication of small firms in the 1880s and 1890s revealed in chapter 2 may be interpreted as evidence that written off productive resources were not leaving the industry either quickly or permanently enough, leading to reduced incentives and rewards for those considering re-equipping and updating their firms (43).

Grayson and White argue that the clustered and atomistic structure of the Sheffield cutlery trades may have ‘benefited the short-term interests of the local entrepreneurs and merchants’ but ‘ultimately acted against the development of the industry itself and introduced a conservative approach to marketing and production’ (44). Tweedale also, whilst describing the complex of industries in Sheffield as ‘a classic cluster, perhaps the most intense and successful in British industry at that time’, notes that by the 1870s some sectors, particularly cutlery and tools, were becoming ““closed” worlds....both socially and technologically....mostly immune to disturbing cross-currents, and lacking....cosmopolitanism’. By the 1880s the cutlery trade ‘was looking dated’ (45).

Elbaum, Lazonick and Mass are concerned primarily with the sources of competitive advantage. However, though they rarely directly address the issue of clustering they do trace the dominant international position of an industry such as the Lancashire cotton trades of the nineteenth century to geographic concentration, localization and external economies, that is to what may be referred to as clustering, co-location, or proximity. They also go on to conclude, in terms redolent of Marshall, that ‘the automatic market mechanism’ which characterized the fragmented Lancashire cotton trades was soon to break down, planned co-ordination in the Japanese cotton industry eliminating the competitive advantage ‘that the market co-ordinated Lancashire industry had inherited from its nineteenth century era of international dominance’ (46). Moreover, their focus on the ‘matrix’ of institutional rigidities displayed by atomistic industries has clear affinities with claims that ‘Dense networks....may become too ingrown and isolated, and thus deprive business owners of information with potentially adaptive value....(the) network structures which facilitate trust....(can) become a force for defending old ways’ (47).

In essence Elbaum and Lazonick argue that in the late nineteenth century British industry became ‘stuck’, a concept, which it will be shown, is developed in theoretical terms by Porter. Thus Porter and the writers associated with the institutional rigidity thesis agree that the structures of industries emerge through historical processes and do much to determine the competitive strategies of the firms involved, that such structures are highly resistant to the reforming efforts of individual actors, restricting the range of strategic responses

available, and that competitive advantage is profoundly dynamic. The pottery industry, which was characterized by at least three of the four central propositions identified by Kirby in the Elbaum/Lazonick thesis, will provide evidence in support of each of these conclusions (48). Just as in the very different shipbuilding industry the ceramic industry was subject to the influence of an 'inherited structure-its fragmentation and extreme competitiveness', precluding the formulation of new strategies or organizational structures. The pottery industry was certainly not the only spatially clustered and disintegrated British industry against which international shifts in competitive advantage were working at this time.

As has already been suggested these historical re-evaluations of the dynamism of clustered industries mirror recent theoretical developments in the industrial district model. Reference will be made here to the work of Porter and Staber (49). Though Porter's work is designed principally to guide active managers in the formulation of successful competitive strategies his assertion that 'The essence of formulating competitive strategy is relating a company to its environment' and that 'Industry structure has a strong influence in determining the competitive rules of the game as well as the strategies potentially available to the firm' have clear relevance to historians studying the growth, development, and strategic choices of an industry (50). Though not an historian, Porter also acknowledges that the structures of industries emerge out of historical developmental processes. Thus, 'the competition in an industry is rooted in its underlying economic structure *and goes well beyond the behaviour of current competitors*' (51). Porter's work is of the greatest use when he turns to an analysis of particular generic industry structures and the competitive strategies which they are likely to foster. Thus, examination of the business structure of the Potteries, reconstructed in chapter 2, in terms of the framework developed by Porter leads to the categorization of the pottery industry as a fragmented industry. This categorization can help further attempts to understand why firms in the Potteries struggled to find successful strategic responses to the new competitive challenges with which they were faced in the late nineteenth century.

Porter defines a fragmented industry as 'usually....populated by a large number of small and medium-sized companies many of them privately held'. Furthermore, they are industries in

which ‘no firm has a significant market share’ or the ‘power to shape industry events’ (52). Clearly the pottery industry of the late nineteenth century, as reconstructed in chapter 2 of this work, has a high degree of fit with this definition. Members of fragmented industries are faced with a series of strategic problems, ‘intense competitive forces are usually the rule’, all competitors have a ‘generally weak bargaining position with ...buyers’, and ‘Marginal profitability can be the result’ (53). That the pottery industry was subject to a weak relationship with buyers will be demonstrated in chapter 6, whilst a specific example of highly marginal profitability is provided by the case of Mintons, subject of chapter 5. More generally, it will be shown that intense competition was seen by contemporary observers and participants as a central cause of the ceramic industry’s problems in the late nineteenth century. Many of the strategic responses apt in fragmented industries require ‘focus or specialization’, such as is provided by product differentiation or market segmentation, and a number of such focusing strategies will be examined here, including the highly successful firm of Dunn, Bennett and Co. explored in chapter 6 (54).

There are many reasons why an industry might be fragmented. Porter identifies 12 broad economic causes of fragmentation; of these the pottery industry in North Staffordshire was characterized by 9. These were: low overall entry barriers, absence of economies of scale, high transportation costs, high inventory costs or erratic sales fluctuations, no size advantage in dealing with suppliers or buyers, diseconomies of scale in some important aspect, the need for close local control, diverse market needs and high product differentiation, and barriers to exit (55). The industry was not, on the other hand, subject to local regulation, government prohibition of concentration, or newness. Without significant external challenge from newer and less fragmented industries elsewhere many of these determinants of industry type had led to the development in North Staffordshire of a complex of many firms competing and co-existing on the basis of market segmentation. However, as will be seen in the case of Mintons, changing conditions in the last quarter of the century quickly exposed their high costs and susceptibility to price competition as low cost producers sought to consolidate international markets.

However, Porter also notes that there can be supplementary, 'historical' reasons for the fragmentation of an industry, that is an industry can have a non-economic bias or allegiance to a fragmented structure. Furthermore, Porter notes that in fragmented industries 'There may be competitors with goals that are not profit-oriented' and that 'owner-managers may have non-economic reasons for being in business', but does not examine in depth either the origins or the influence of such factors (56). In effect the existence of what might be called business culture is acknowledged but not explored. Porter's model is under-socialized and remains relatively functional. Porter provides a useful theoretical underpinning for empirical evidence of constrained strategic response in the pottery industry but he only indicates, rather than explains, those 'missing pieces' of the puzzle which, as Lipartito suggests, may be approached through the notion of business culture (57).

In a similar vein, whilst Porter notes that 'for purposes of strategy....many industries are fragmented, not for fundamental economic reasons but because they are "stuck" in a fragmented state', he does relatively little to explore the reasons he gives for this happening, such as 'Existing firms are myopic or complacent' (58). Moreover, though Porter pays considerable attention to clustering, viewing it in a generally positive light, he is, as Staber notes, 'somewhat vague about the level of aggregation at which rivalry and cooperation create competitive advantages' (59).

However, it is not argued here that these historical and theoretical perspectives suggest that the industrial district model needs to be abandoned. Thus, the absence in an industrial district of the 'kinds of cooperative relations between firms that such districts are supposed to require' does not undermine the model itself but, instead, requires that it be cast in a different light (60). How might this be done?

It has been noted that each of the approaches addressed so far has limitations. These limitations are, broadly, of a kind. Moss, retaining the firm as a focal point of his analysis, replaces the neo-classical assumption of profit maximization with what he terms the 'less heroic....weak assumption' that the 'first goal of the management team of any firm is survival of that firm'. This, like the rest of Moss's theory certainly has greater reality but still

leaves a number of questions unaddressed (61). What constitutes survival, why is survival desired, and are there cases in which the price to be paid for survival becomes too high? These are issues noted in the case study of Minton Ltd. Elbaum and Lazonick, in giving centrality to 'an insistence that....it was not the businessmen who were at fault but the system', allow the 'often wholly credible institutionalist approach to take on some of the mechanistic features of other sorts of economic analysis' (62). In other words, they undervalue human agency. Scranton, on the other hand, redeems the industrial district, despite the 'inability even in crisis to bridge the conflict between the goals of separate capitals and the collective consequences of individual actions' (63). Even Marshall preferred to leave some of the 'mysteries' of the industrial district 'as it were in the air' (64).

In each of the approaches considered so far then the concept of business culture is either absent or not carefully elucidated in terms of its formulation, content, or impact. As Lipartito suggests introducing the concept of business culture seeks not to replace other approaches but to give them a greater complexity. This study will explore business culture in two contexts, each presenting a quite different set of problems and solutions. Firstly, the business culture of individual firms will be considered. The case study approach, in which the 'slippery' and contested concept of business culture can be contained and isolated within the boundaries of the firm, has been the primary form in which the concept of business culture has been applied to business history (65). Nonetheless, even the firm has proved to be a far from simple site for the investigation of business culture. However, the case study in general now occupies a reduced position in business history, and this must be particularly so in a study which adopts a network perspective. Thus, secondly, business culture will be explored at the level of the district. In essence it will be argued that the Potteries hosted a broad but far from homogenous business culture, rooted equally in the influence of place, history, and industry structure, that was both shared and contested, serving to unite and to divide.

Though boasting a voluminous literature; theoretical, contemporary, and, increasingly, historical, business or corporate culture remains a rather ill-defined concept. As Kono notes 'corporate culture is an intangible asset' (66). Though definitions, and thus also the

questions generated, have proliferated, often in conflict with one another, most agree that culture plays an important role in conferring meaning on the 'more intangible aspects of organization' (67). However, there is, as Rowlinson notes, 'confusion about the relationship between strategy, structure and culture' (68). Kirby, building on Coleman's conclusion that 'an attitude of mind antipathetic to building change into the system' was a recurrent motif in the histories of a number of leading British businesses, suggests that such attitudes drew strength from the existing "'culture of the firm", itself derived from the internal perception, distant or very recent, of the enterprise' (69). This tells us something about the origins of business culture, important in itself, but little about those relationships distinguished above. Similarly a company's culture may be embodied in and represented by physical things, from company headquarters to the products made, but these are only expressions of what Casson defines as 'a collective subjectivity-a shared set of values, norms and beliefs', a definition congruent with Schein's emphasis on basic shared assumptions (70). This collective subjectivity rarely needs to be voiced in order for it to be understood by those who share it. Indeed, one of the main problems in studying the cultures of firms in the nineteenth century is that such cultures were neither consciously invented, nor subjected to retrospective analyses of their influence, as they are in many firms today. However, the implicit nature of company cultures, particularly in the past, is important because it strongly suggests that they emerge over time, from 'a history of shared experience' (71). It is in the evolutionary nature of the process of culture formation and transmission, based in and conferring stability, that, as is true also of the disintegrated structures of industrial districts, lie both its strengths and weaknesses.

These patterns of gradual growth suggest that in a successful company there will be a sense of dynamic interplay between culture, strategy, and structure. It will, for example, be shown here that such interplay was, for a time at least, absent from Mintons. The close and stable alignment of culture and strategy at Mintons in the late nineteenth century would appear, superficially, to support Weick's claim that strategy and culture are interchangeable or substitutable aspects of organizations, but this study will in fact confirm Schein's separation of culture from strategy by presenting evidence that company culture operated 'at a deeper level, frustrating strategies "that make sense from a financial, product or marketing point of

view”” (72). If culture is more deeply embedded in a company than strategy then the same is also true of its relationship to structure, which Schein describes as an ‘artifact’ of culture. Weick also noting that ‘structures are patterns that develop along lines of communication. Both strategy and culture can generate structure’(73).

Strategy, structure and culture are then separate and with distinct properties, but the question of the lines causality between them, particularly during periods of change, remains unresolved. Rowlinson, in his study of Cadburys, argues that cultural ‘dilution’ in the 1960s was the ‘unintended consequence of diversification and divisionalization’, that is change in the culture of the company flowed from strategic and structural change. In other words strategic and structural change have the power to reshape culture, though not always without a fight (74). However, the majority of explorations of company culture have, quite naturally, focused on such moments of change and have thus tended to posit such linear flows of causality, also normally from strategy and/or structure to culture (75). However, the case study undertaken in this work, precisely because it is concerned with strategic stasis in the face of considerable external pressure for change, suggests a more complicated picture. Kono argues that the product-market strategy of a firm and its culture are interdependent components of a cycle, the third component of which is performance. Further components could be usefully added to this model, most obviously that of organizational structure, but most important is the direction in and rate at which this cycle spins. This cyclical image suggests that the relationship between culture and strategy is not a directly functional one but that culture, instead, serves as a connective tissue between strategy, resources, opportunities, and constraints. It will be shown here the cycle embracing culture, product-market strategy, and structure can become almost static and even adverse change in the final component of the cycle, performance, is not always sufficient to start it spinning again. Firms often found it ‘easier to distort new data by denial...rationalization, or various other defensive mechanisms than to change basic assumptions’ (76).

The evidence that will be presented here, whilst providing support for the emphasis placed by Rowlinson, Lipartito, and Schein on the specificity of company cultures, also contrasts with that found in many company culture case studies. That difference may be ascribed to

the focus here on firms in stasis. Lipartito's claim that a 'cultural approach can help us to understand stasis or failure' has in fact received comparatively little investigation as yet, but will prove rewarding in illuminating the connections between business culture, structure and strategy through the suggestion that a business culture may have a different meaning and force at different stages in the history of a firm (77). Martin, Sitkin, and Boehm, in criticizing Schein's emphasis on culture as a legacy of the company founder, make a similar point, noting that the 'content of a given culture or subculture can also be influenced....by the constraints of the organization's stage in its life cycle, or by external factors such as major changes in a firm's environment' (78). As contexts alter the maintenance of a nominally same or similar set of values and goals cannot guarantee that a culture will continue to have the same meaning. The passage of time may change the impact made by an apparently stable culture that once promoted success. Thus, as a firm first grows a focus on quality may create an aspirational purpose and commitment within the firm, but in the context of a mature firm facing new challenges the outcome may well be a defensive purpose and commitment. Whether this is true of industries as well as of firms may prove an interesting point of departure.

How, though, may the notion of business culture be integrated with a network perspective, and with the industrial district model in particular? Some broad initial points may be made. Firstly, there are areas of agreement between theoretical models of organizational culture and recent re-evaluations of British personal capitalism, often rooted in disintegrated structures. In both there is an increasing emphasis on the co-existence of strength and weakness, paralleled in the concepts of the industrial district and flexible specialization by the emphasis on adaptive capacity. As Schein argues it is the basis cultures have in stability which lends them the power to make groups cohere but which also makes them so resistant to change. Similarly it is clear that, as Lloyd-Jones and Lewis argue, 'personal capitalism had both strengths and weaknesses' (79). The efficacy of both structures and cultures is, in large measure, influenced by evolutionary environmental change, 'the degree of consensus' culture creates within a group tending to be 'more functional in the early growth of the group and....dysfunctional in the later stages'. Similarly it is not possible for a company's or

an industry's history to be dismissed simply as the 'restraining dead hand...of past achievement' (80).

However, the attempts made to consider business and culture in a broader context than that provided by the individual firm attention have generally focused on cultural attitudes towards business rather than the cultural attitudes of businessmen or business communities. It is with the latter that we are interested when claiming that the Potteries itself was the site of a business culture closely related to but still distinct from that found within the individual firm. In examining specific company cultures the principal objective is often, firstly, to clarify the relationship between culture and strategy and, secondly, to note some of the points of contact between the culture explored and the formative influence of dominant individuals. To some extent the emphasis tends to fall on patterns of 'harmony and integration', or coherence (81). The issues raised during investigation of an industry or district wide business culture will necessarily be somewhat different. In particular, given the greater size of the body under consideration, its complexity, and the far looser 'structure' it possesses, it is unlikely that the 'picture of culture which emerges' will be 'monolithic' (82). Three tasks are necessary then; firstly, to demonstrate that enough was shared by the business men of the Potteries to support the claim that they had a culture, secondly, to map the lines of fracture, conflict, and contradiction within that culture, and, thirdly, to relate those divisions to the atomistic or disintegrated structure of the industry. It will, in short, be argued that the institutional rigidity of the industrial structure of the Potteries was replicated in and reinforced by cultural rigidity at the district level.

A fragmented industrial structure, a wide range of firm sizes, a strong bias to personal capitalism, intense spatial clustering, a degree of geographical isolation, and a highly indigenous population all contributed to the formation of business culture in North Staffordshire. In short, the business culture of the Potteries industrial district emerged out of and was shaped by three imperatives, those of history, of economics, and, equally powerfully, those of place. What approaches will help in attempting to understand those forces and their outcomes?

Aspects of the literature on culture formation in individual organizations have relevance because the central emphasis on shared histories and basic assumptions can be transposed to the wider stage. Basic assumptions held by many in the pottery industry, such as that North Staffordshire made the best pottery in the world, may be easily uncovered. Furthermore this approach has been given greater subtlety by the work of Martin, Sitkin and Boehm, their 'differentiation paradigm' laying emphasis on the 'conflict and differentiation that are characteristic of complex institutions' (83). Though recognizing that cultures require a basis in common or shared values, beliefs, and experiences they also insist that such sharing is never complete and that interpretations of the precise meaning of what is shared is open to dispute. Businessmen and entrepreneurs in the Potteries did share much. They had also to deal with one another very frequently, dealings mediated to a great extent by familiarity and trust. They were embedded in a distinctive local social fabric or milieu, but, as will be shown throughout the thesis, there was perhaps as much that divided them. Thus, though appearing to the outsider as a unified and homogenous district, the Potteries, both the city and the industry, were riven by layers of difference, division and contest.

How can this picture be integrated with the 'ideal-typical industrial district'? Though, as Staber argues in a crucial passage

the concept of social embeddedness offers a corrective to standard agglomeration theory and neo-classical economic theory by treating social relations, rather than individual actors as the unit of analysisthe concept remains theoretically vague because it is silent on the *content* of social relations. Without knowing the meaning that actors attach to their participation in a network it is impossible to predict their behaviour in relation to network partners. The content of social relations gives meaning to the word trust. The concept of social embeddedness is also silent on the *mechanisms* by which social structures constrain or facilitate economic action. It is also not clear what the *carriers* are through which social expectations exert their influence on network actors. (84)

The challenge is to explain how network 'actors construct relations and how they interpret the meaning of relations' (85). This work will attempt to address some of these issues, especially in chapters 7-9, with particular reference to Staber's emphasis on 'the belief

systems, or *cultures*, within which network relations are embedded' (86). Thus, the often low levels of trust seen in the Potteries industrial district, and the absence of either coercive or normative sanctions on opportunist behaviour, will be related to the existence of competing belief systems or cultures within the networks of the district. These cultural divisions will be shown to have been oriented around the structural divisions of the industry. This integration of structural and cultural approaches is important, for a 'purely structural analysis of district relations risks losing sight of the human agents who interpret meanings, modify rules, and articulate preferences' (87).

Piore and Berger contend that societies also often seem 'far "lumpier" than could be accommodated by any models based on the premise that social and economic structures are generated by continuous variables'. They go on to argue that 'models of market rationality and modernization' are wrong in supposing that 'the characteristics of individuals, on the one hand, and their choices and decisions, on the other, determine where individuals are located within the social structures of modern societies' (88). Instead, they claim, society is organized and segmented according to institutional definitions and the behaviour and socio-economic positioning of individuals may be analyzed as a response to the

rules and incentives that develop in different segments of society. Institutions offer rewards and impose constraints upon individual's actions. These operate in turn to promote certain behaviours and foreclose others. The result is that...choices, attitudes, and behaviours vary across the segments of society. (89)

This study will argue that the business community of the Potteries was in effect the site of just such a process of segmentation, leading to the business networks of the district being more weakly embedded in the social fabric of the Potteries than might be expected, given the intense and prolonged clustering of the industry in North Staffordshire.

However, the problem of specifying the mechanisms and content of this segmentation remains. In order to address this issue the assertion that 'one of the key points of the institutional perspective (on district networks) is that history matters, and often in

unpredictable ways' will be adopted and combined with Massey's exploration of the way in groups construct, act in relation to, and identify with particular understandings of place (90). It will be shown that many of the issues around which conflict was organized in the Potteries had their roots in powerful, interdependent perceptions of place and past. Conflict between groups of businessmen in the Potteries in the late nineteenth century was, more specifically, about who most faithfully represented the past of the district and its current and future continuation. The influence of a sense of history cannot be separated from the influence of a sense of place.

In Places and their Pasts Massey argues that groups within society, Piore and Berger's lumps or segments, organize themselves, ascribe meaning to what they do, and come to recognize themselves as representing the essence of a place through reference to the twin co-ordinates of space and time. Furthermore, crucially, both the past and the present of a place are 'open to a multiplicity of readings....Moreover, the claims and counter-claims about the present character of a place depend in almost all cases on particular, rival interpretations of its past' (91). Dispute and failed collaborations in the Potteries, noted throughout this study but particularly in chapter 8, were the outcome of just such rival interpretations. To the new and small entrepreneur, shown by the reconstruction of industry structure to be both entering the industry in greater numbers throughout this period and forming the pool from which larger businesses typically grew, the illustrious history of the district represented his own potential, what he might become and what he might gain. However, to the head of an established family firm that same history represented what had been achieved and what stood to be lost, for these 'competing histories of the present' were 'wielded as arguments over what should be the future' (92).

However, before these arguments can proceed it is necessary to carry out the detailed empirical reconstruction of industry structure, and it is to that task that we now turn.

NOTES AND REFERENCES.

1. The North Staffordshire pottery industry, and more particularly Josiah Wedgwood, has long played a prominent role in accounts of the British industrial revolution. Wedgwood is cited as important in terms of developing a factory system based in the division of labour, new forms of work discipline, and new forms of marketing and distribution. See, for example, Mathias, P., The First Industrial Nation, 1969, p.154. The industry has also figured in the proto-industrialization debate, see Weatherill, L., The Pottery Trade and North Staffordshire, 1660-1760, 1971. However, business history of the industry in the nineteenth and twentieth centuries is scant.
2. Wilson, J., British Business History, 1760-1994, 1996, p.3.
3. Lipartito, K., 'Culture and the Practice of Business History' Business and Economic History, Vol.24, No.2, 1995, p.2.
4. Staber, U. 'The Social Embeddedness of Industrial District Networks' in Staber, U., Schaefer, N. & Sharma, B. (Eds), Business Networks: Prospects for Regional Development, 1996, p.157.
5. Lee, C.H., 'Corporate Behaviour in Theory and History: II The Historians Perspective' Business History, Vol.32, No.2, 1990, p.176.
6. Harvey, C. & Jones, G., 'Business History in Britain into the 1990s' Business History, Vol.32, No.1, 1990, p.12.
7. Staber, 1996, p.148.
8. Staber et al, 1996, p.V.
9. Ibid., p.V.
10. Lloyd-Jones, R. & Lewis, M., Manchester and the Age of the Factory, 1988, 'Personal Capitalism and British Industrial Decline: The Personally Managed Firm and Business Strategy in Sheffield, 1880-1920' Business History Review, 68, 1994, Lewis, M. The Growth and Development of Sheffield's Industrial Structure, 1880-1930, Ph.D., 1989, Timmins, G., 'Concentration and Integration in the Sheffield Crucible Steel Industry' Business History, Vol.24, 1982.
11. Lloyd-Jones and Lewis use the reconstruction of business structure as the basis for forging a system approach, defining a system 'as opposed to a simple aggregation...as characterized by relations between it's constituent elements; these relationships are diachronic (between elements over time) or synchronic (between elements at a point in time)', 1988, p.13. This definition has affinities with the dynamic, relational emphasis in Staber's institutionalist approach to the analysis of business networks.
12. Lee, in fact, identifies an 'antipathy towards economic theory amongst business historians', 1990b, p.173. His article may be read as a corrective to that attitude.
13. Moss, S., An Economic Theory of Business Strategy, 1981.
14. Ibid., p.16-7.
15. Ibid., p.14 & p.13.
16. Ibid., p.14 & p.13.
17. Ibid., p.18.
18. Chandler, A., Scale and Scope, 1990.
19. For example, Moss notes that 'uncertainty avoidance-or better, perhaps, uncertainty reduction-is one reason for, and a result of, the adoption of business strategies which rely as extensively as possible on resources and activities with which the firm is familiar'

- , p.31. Such strategies will often prove cautious and adaptive. Moreover, Moss clearly views uncertainty as both cause and effect of such strategies, and it will be argued here that in a number of areas, such as the process of mechanization, the pottery industry experienced a form of negative feedback mechanism.
20. Ibid., p.103.
 21. Marshall, A., Industry and Trade, 1911, Piore, M. & Sabel, C., The Second Industrial Divide, 1984, and Sabel, C. & Zeitlin, J., 'Historical Alternatives to Mass Production: Markets, Politics, and Production in the Nineteenth Century' Past and Present, No.8, 1985.
 22. Taplin, I. & Winterton, J., 'New Clothes from Old Techniques: Restructuring and Flexibility in the US and UK Clothing Industries' Industrial And Corporate Change, Vol.4, Pt.3, 1995, p.618.
 23. Staber et al, 1996.
 24. Marshall, 1911, p.599.
 25. Ibid., p.599-600.
 26. Staber, U., 'Networks and Regional Development: Perspectives and Unresolved Issues' in Staber et al, 1996, p.1. Staber notes the many different ways in which the industrial district model has developed since the work of Marshall. Considering just economics reveals a range of perspectives, for example, 'Neo-institutionalist economists, particularly those within the transaction cost framework....think of interfirm networks as a governance alternative to both open markets and internal organizational hierarchies' p.2.
 27. Marshall, 1911, p.601 & p.603.
 28. Ibid., p.230-1.
 29. Ibid., p.287.
 30. Marshall does, however, note that 'even a little obstinacy or inertia may ruin an old home of industry whose conditions are changing....and the opening out of new sources of supply or new markets may quickly overbear the strengths which old districts have inherited from past conditions'. He is, though, on balance, optimistic, a 'strong centre of specialized industry often attracts much shrewd new energy to supplement that of native origin, and is thus able to expand and maintain its lead', Ibid., p.287.
 31. For example, Lloyd-Jones and Lewis, in considering Sheffield as an industrial district, claim that it is possible to identify a 'set of exogenous forces which shaped the strategic response of Sheffield firms', 1995, p.394.
 32. Scranton, P., Figured Tapestry: Production, Markets and Power in Philadelphia Textiles, 1989, 'Diversity in Diversity: Flexible Production and American Industrialization, 1880-1930' Business History Review, 65 1991, 'Build a Firm, Start Another: The Bromleys and Family Firm Entrepreneurship in the Philadelphia Region' Business History, 35,1993, Ingham, J., Making Iron and Steel: Independent Mills in Pittsburgh, 1880-1920, 1991, Piore & Sabel, 1984, Sabel & Zeitlin, 1985.
 33. Staber, 1996, p.8.
 34. Sabel and Zeitlin, 1985, p.152.
 35. The Pottery Gazette, November 1879, p.427 & May 1883.
 36. Thus, as Elbaum and Lazonick argue, competitive advantage is profoundly dynamic. One of their principle aims is to explore 'why, in a later era under altered conditions.... competitive advantages could not be sustained' The Decline of the British Economy,

- 1990, p.9.
37. Staber et al, 1996, p.V.
 38. Scranton, 1989, Elbaum and Lazonick, 1990, Porter, M.E., The Competitive Advantage of Nations, 1990.
 39. Scranton, 1989, p.131.
 40. Ibid., p.165.
 41. Mass, W. and Lazonick, W., 'The British Cotton Industry and International Competitive Advantage: The State of the Debates' Business History, Vol.32, No.4, 1990, p.10.
 42. Kirby, in his review of the institutional rigidity thesis, lays considerable stress on the importance of collusive barriers to exit, noting that it is 'equally valid to argue in so far as the UK productivity lag rested primarily on the efficiencies in the use of factors of production, emphasis on corporate structures should give way to the "competitive environment as the key determinant of conduct" with a particular focus on the reasons for the tardy disappearance of high cost producers', and that 'suppression of competition via collusion would loom large in any analysis of barriers to exit' Kirby, M.W., 'Institutional Rigidities and Industrial Decline: Reflections on the British Experience' Economic History Review, XLV, No.4, 1992, p.645. It is argued here that in the absence of collusion the networks of the Potteries industrial district fulfilled a similar function in sustaining inefficient producers as a class. Church found that in the Midlands hardware trade, where the collusive protection of weak firms did occur, 'so long as entry....remained relatively easy....the importance of restrictive agreements should not be exaggerated' Church, R.A., Kenricks in Hardware: A Family Business 1791-1966, 1969, p.311.
 43. Central to this claim is the frequently made argument that the fates of firms in industrial districts are tied together, or at least closely linked, see Staber 1996.
 44. Grayson, R. and White, A., Nineteenth Century Sheffield and the Industrial District Debate, Unpublished paper presented at Sheffield Hallam University, Spring 1994.
 45. Tweedale, G., Steel City: Entrepreneurship, Strategy and Technology in Sheffield, 1743-1993, 1995, p.59 & p.164-5.
 46. Mass and Lazonick, 1990, p.18.
 47. Staber, 1996, p.167,
 48. Kirby's distillation of the Elbaum/Lazonick thesis is as follows; 'Firstly, firms are highly competitive, exercising little market power. Secondly, the average firm size is small compared with overseas practice. Thirdly, vertical integration is notable for its absence in that the different stages of production are linked not by managerial hierarchies, but by markets. And finally, control over shopfloor organization and the introduction of new technology is exercised by highly unionized groups of workers', 1992, p.639.
 49. Porter 1990, Staber, 1996.
 50. Porter, M.E., Competitive Strategy, 1980, p.3.
 51. Ibid., p.3.
 52. Ibid., p.191.
 53. Ibid., p.206.
 54. Ibid., p.206.
 55. Ibid., p.196-200.
 56. Ibid., p.199 & p.212.
 57. Lipartito, 1995, p.2.

58. Porter, 1980, p.205.
59. Staber, 1996, p.8. Porter develops cluster theory further in The Competitive Advantage of Nations arguing that 'Once a cluster forms, the whole group of industries becomes mutually supporting. Benefits flow forward, backward and horizontally. Aggressive rivalry in one industry tends to spread to others in the cluster, through the exercise of bargaining power, spin offs and related diversification by established firms. Entry from other industries within the cluster spurs upgrading by stimulating R & D approaches and providing a means for introducing new strategies and skills', 1990, p.151.
60. Tomlinson, J., 'Review of Periodical Literature' Economic History Review, XXIX, No.1, 1996, p.178.
61. Moss argues that 'There is nothing in the neo-classical theory of the firm that reflects anxiety on the part of the entrepreneur that his firm should survive a day longer than its capacity to earn at least normal profits', 1981, p.29. However, Moss does little to explore further the range of non-profit oriented motivations entrepreneurs and managers may have.
62. Coleman, D.C. review of 'The Decline of the British Economy' Business History, Vol.XXX, 1988, p.130-1.
63. Scranton, 1989, p.130.
64. Marshall, A. Principles of Economics, 1964, p.225.
65. See for example Church, R.A. 'Deconstructing Nuffield: The Evolution of Managerial Culture in the British Motor Industry' Economic History Review, XLIX 3, 1996.
66. Kono, T., 'Changing a Company's Strategy and Culture' Long Range Planning, Vol.27, No.5 1994, p.85.
67. Rowlinson, M., 'Strategy, Structure and Culture: Cadburys, Divisionalization and Merger in the 1960s' Journal of Management Studies, 32:2, 1995, p.123.
68. Ibid., p.122.
69. Kirby, 1992, p.642.
70. Casson, M., 'Entrepreneurship and Business Culture' in Brown, J. and Rose, M.B. (Eds.), Entrepreneurship, Networks and Modern Business, 1993, p.43.
71. Schein, E.H., Organizational Culture and Leadership, 1992, p.10.
72. Rowlinson, 1995, p.122.
73. Weick, K.E., 'The Significance of Corporate Culture' in Frost, P., Moore, L. Louis, M., Lundberg, C., and Martin, J., Organizational Culture, 1985, p.834.
74. Rowlinson, 1995, p.121.
75. Rowlinson, 1995, Church, 1996, and Griffiths, J., "'Give My Regards to Uncle Billy...': The Rites and Rituals of Company Life at Lever Brothers, c.1900-c.1990' Business History, Vol.35, No.4, 1995.
76. Schein, 1992, p.27.
77. Lipartito, 1995, p.36.
78. Martin, J. Sitkin, S. and Boehm, M., 'Founders and Elusiveness of a Cultural Legacy' in Frost et al, 1985, p.101.
79. Lloyd-Jones and Lewis, 1994, p.407.
80. Schein, 1992, p.68 and Lloyd-Jones and Lewis, 1994, p.407.
81. Martin et al, 1985, p.100,
82. Ibid., p.100. Similarly, Staber notes that 'The institutional order of districts is not immutable. The possibility of conflictual rules and inconsistent interpretations opens up

- room for discretion, and thus also for choice', 1996, p.173.
83. Martin et al, 1985, p.100.
 84. Staber, 1996, p.157.
 85. Ibid., p.157.
 86. Ibid., p.164.
 87. Ibid., p.172.
 88. Piore, M. and Berger, S., Dualism and Discontinuity in Industrial Societies, 1980, p.2-3.
 89. Ibid., p.2-3.
 90. Staber, 1996, p.171 and Massey, D., 'Places and Their Pasts' History Workshop Journal, 39, 1995.
 91. Ibid., p.185.
 92. Ibid., p.185.

2: THE BUSINESS STRUCTURE OF THE NORTH STAFFORDSHIRE POTTERY INDUSTRY, 1860-1900.

This chapter will lay a foundation for the rest of the thesis by reconstructing the business structure of the Potteries in the second half of the nineteenth century. The status of Stoke-on-Trent as the primary producer of ceramic goods in Britain and, indeed, much of the world was firmly established by the mid-nineteenth century. The city entered the second half of the century as the seat of a commanding and confident industry. Commentators noted a 'maturity' (1) which the American Consul to the district, Edward Lane, ascribed to 'concentration of effort combined with an industrial existence of two hundred years' (2). However, the business structure of this vigorous industrial sector has, until now, received little attention (3). It is the task therefore, of this chapter to begin a systematic analysis of the business structure of the Potteries as a prerequisite to subsequent explorations of business strategy, behaviour and culture in the industry. The population of firms will be reconstructed and the size structure of that population analyzed over time. This reconstruction will, in addition, allow for an exploration of a range of further issues, including degrees of industrial concentration, the longevity and mobility of firms, the rentier nature of the industry, and conditions of entry. This analysis of business structure will be supplemented by discussion of the role of personal or familial capitalism as the predominant structuring or organizational principle of firms in the Potteries (4). The picture that will emerge is of a highly and increasingly competitive industry characterized by a preponderance of small and medium-sized, personally-managed firms.

Many of the themes developed later in this work will be informed by the reconstruction carried out here. Thus, chapter 4, in which an examination of the resource response made by firms in the Potteries leads to a discussion of attitudes to mechanization, will explore linkages between business structure and innovation. It will be argued that the 'openness' of the industry's structure acted generally to retard innovation, though this was an area in which the influence of structure was also compounded by that of culture, itself firmly rooted in the small-scale, personal capitalism of the district. The structure of the industry was also an important factor in the relationship between firms in the industry and the market,

discussed in chapters 5 and 6. Again the highly competitive structure of the industry served to constrain the ability of firms to strengthen weak relationships with the institutions of the market at a time when both patterns of demand and the marketing strategies of emergent competitors were changing. Thus, Wilson's conclusion that an 'obvious consequence of the small-firm mentality pervading British business up to the mid-nineteenth century was the failure to develop dedicated and extensive marketing and sales networks' was still valid for the pottery industry at a later date (5). As a final indication of the importance of this reconstruction of business structure it may be noted that in chapter 8 the heterogeneity, ease of entry, and degree of mobility by which the industry was characterized will be shown to have lain behind a range of debates through which the business culture of the district expressed itself. These debates focused on issues such as the establishment of formal institutions of co-operation, the interests of the 'trade', the impact of small firms on the industry as a whole, and in which direction lay the future of the industry.

Though the pottery industry almost completely dominated the local economy of Stoke-on-Trent the industry itself was marked by a considerable degree of variety and differentiation. Firms were divided not so much by process as by their product-market orientation. Most obviously firms tended to make either china or earthenware, to export or concentrate on domestic markets, though few did so exclusively. Other firms specialized in other wares, Majolica, Parian statuary, or tiles and sanitary ware for example, and towards the close of century the chemical and electrical industries were growing markets for highly technical ceramic wares (6). Moreover, the division of the industry was mirrored in the fiercely defended and highly divided civic structure of the district. Though it was not a hard and fast rule, the manufacture of earthenware was clustered in the northern townships, in Tunstall, Burslem and Hanley, and china to the south, in Longton and Fenton. However, the most significant point of differentiation between firms was certainly that of size. Each type of ware, each market, each township was represented or served by firms both large and small.

There existed then in the shadows of the handful of local firms still famous today - Wedgwood, Mintons, Spode, and Doulton - a mass of smaller or less prestigious firms whose importance is best acknowledged through a reconstruction of the industry's business

structure. This reconstruction has been carried out primarily via data extracted from the rate books for two of the district's six boroughs, Hanley and Stoke-upon-Trent. These are the only boroughs for which significant numbers of nineteenth century rate books are extant. In each case three rate books were utilized in order to follow the population of firms across a twenty year span but in neither borough is the series of books complete and thus the sets used are not concurrent and cannot be aggregated. This work is supplemented by evidence from one rate book for the borough of Longton, dated 1847. For those boroughs with few or no extant books, trade directories may be used to determine the population of firms but not the size structure of that population. The rate books give a description of the property, of rather variable precision, its location, the owner and occupier, sometimes the gross estimated rental, and the rateable value (RV). Following the work of Lloyd-Jones and Le Roux, and Lloyd-Jones and Lewis on the cotton industry of Manchester in the first quarter of the nineteenth century, of Timmins on the Sheffield crucible steel industry at the mid-century, and of Lewis on the Sheffield cutlery and steel trades in the last quarter of the nineteenth century, RV's are used here as a proxy for the fixed capital assets of the firm (7).

In order to provide a base for more detailed work the structure of the industry in each borough was reconstructed for the date from which rate books are extant. The results are given in Tables 2:1 and 2:2, with additional material from Longton in Table 2:3.

TABLE 2:1: A PROFILE OF FIRMS IN HANLEY, 1862.

No of firms	Total RV (£)	Average RV per firm (£)
40	4,241	106

Source: Hanley General District Rate Book, 1862.

TABLE 2:2: A PROFILE OF FIRMS IN STOKE-UPON-TRENT, 1878-9.

No of firms	Total RV (£)	Average RV per firm (£)
14	9,250	661

Source: Stoke-upon-Trent District Rate Book, 1878-9.

TABLE 2:3 A PROFILE OF FIRMS IN LONGTON, 1847.

No. of Firms	Total RV (£)	Average RV per firm (£)
40	5,054	126

Source: Stoke Parish Rates for Longton, 1847.

Immediately obvious is the great difference in average firm size in the boroughs of Hanley and Stoke-upon-Trent. Average RVs of £106 and £661 would locate the typical firm in Hanley as small, within the RV range £0-£150, and that in Stoke-upon-Trent as large, within the RV range £501-£1000. Because of the presence in Stoke-upon-Trent of several of the very largest firms in the whole industry, particularly Spode and Minton's, it may be assumed that the figures for Hanley are more typical of those boroughs without rate books. This conclusion is reinforced by the evidence from Longton. Like Hanley fifteen years later Longton had a population of 40 firms in 1847 with a total RV that again placed the average firm in the small-size category. In fact, that the average firm size in Longton was slightly higher than in Hanley would have surprised many contemporaries. Longton, the most southerly of the district's six towns, concentrated on the manufacture of china and has long been supposed to have been a hive of tiny, so-called 'penny jack' shops (8). In comparison Lewis found an average RV of £419 amongst a population of 319 Sheffield firms in 1880, locating 'the typical firm as a medium size enterprise, within the range RV £151-£500' (9). If the same reconstruction of the population of firms is carried out for the boroughs of Hanley and Stoke-upon-Trent at the end of the twenty year span it can be seen that some significant alterations had occurred.

TABLE 2:4: A PROFILE OF FIRMS IN HANLEY, 1882-3

No of firms	Total RV (£)	Average size per firm (£)
66	15,725	238

Source: Hanley Rate Book 1882-3.

TABLE 2:5: A PROFILE OF FIRMS IN STOKE-UPON-TRENT, 1898-9.

No of firms	Total RV (£)	Average size per firm (£)
27	9982	370

Source: Stoke-upon-Trent Rate Book 1898-9.

In each case the latter half of the nineteenth century witnessed a clear tendency both for the overall population of firms to grow and for the size of the average firm to gravitate toward the medium range, RV £151-£500. Were these averages typical though or do they disguise other, possibly contradictory, shifts? Lewis has shown that the way forward from this position lies with the construction of industry type and size categories (10). Attempts at classification by industry type do not prove particularly fruitful for the pottery industry of the nineteenth century. The basic distinction between capital and consumer goods producers utilized by Lewis for Sheffield did not exist. Furthermore, in rate books and trade directories both precision and consistency are lacking. For instance in the Hanley rate book of 1862 the premises of all pottery firms are simply recorded as manufactories. In later years both this designation and a more precise specification of the type of ware produced are used in an apparently arbitrary manner for different firms. Similarly, all trade directories are detailed in their categorization of some firms and not of others. To some extent this difficulty in classification by industry type is indicative of the flexible specialization which was characteristic of the industry as a whole. It will be shown, however, that simple size categories still have the potential to tell us much about the growth and development of the industry.

Again methods developed by Timmins, Lloyd-Jones and Lewis, and Lewis are adopted here in order to utilize RVs as a proxy for size (11). Size groupings within the population of firms have been mapped and the boundaries between them drawn. This mapping process is presented in Appendix A, Table 1. The resulting size categories are shown in Table 2:5.

TABLE 2:6: FIRM SIZE CATEGORIES BY RV, 1862-1898.

Size Category (RV) (£)	Description
1-150	Small
151-500	Medium
501-1000	Large
1000+	Giant

These size categories echo closely those determined by Lewis for the Sheffield iron and steel industry in the last quarter of the nineteenth century, with the exception that in the Potteries the boundary between large and giant firms, at £1000, rests £500 lower than in Sheffield (12). This finding seems consistent with a lower average RV amongst firms in the ceramic industry. The reconstruction of industrial structure by size category is begun in Hanley in 1862 and then developed across time, the limited evidence from Longton is again introduced in order to supplement the more substantial data sets.

TABLE 2:7: SIZE OF 40 HANLEY FIRMS, 1862.

Size	No	%
Small	30	75
Medium	8	20
Large	2	5
Giant	0	-

Source: Hanley Rate Book, 1862.

TABLE 2:8: SIZE OF 40 LONGTON FIRMS, 1847.

Size	No	%
Small	28	70
Medium	12	30
Large	0	-
Giant	0	-

Source: Stoke Parish Rates for Longton, 1847.

Here, the traditional picture of Longton as the home of very small firms receives more support, behind an average RV higher than that for Hanley fifteen years later lay a complete

absence of large or giant-size firms. In general then, the evidence for both Longton and Hanley suggests a clear trend towards small firms within the industrial structure of both boroughs. This conclusion is reinforced by an analysis of the composition of individual size categories, 20 small firms in Hanley (66% of that category) were very small, having an RV of less than £50. How did this structure develop during the remainder of the century? The reconstruction by size category of the industrial structure of Hanley and Stoke-upon-Trent across twenty year spans is presented in Tables 2:9 and 2:10.

TABLE 2:9: SIZE OF HANLEY FIRMS, 1862-1882.

	1862		1872		1882	
Size	No	%	No	%	No	%
Small	30	75	28	64	41	62
Medium	8	20	10	23	17	26
Large	2	5	5	11	3	4
Giant	0	-	1	2	5	8
Total	40	100	44	100	66	100

Source: Hanley Rate Books, 1862, 1872, & 1882.

TABLE 2:10: SIZE OF STOKE-UPON-TRENT FIRMS, 1878-1898.

	1878		1886		1898	
Size	No	%	No	%	No	%
Small	3	21	12	54	15	56
Medium	6	43	5	23	7	26
Large	1	7	0	-	0	-
Giant	4	29	5	23	5	18
Total	10	100	22	100	27	100

Source: Stoke-upon-Trent Rate Books, 1878, 1886 & 1898.

There is considerable convergence in the conclusions that may be drawn from these two tables. It was the small and not the medium-sized firm which was typical of the industry. In Hanley, whilst declining as a proportion of the overall population to some extent, the small firm remained predominant, with the next largest category, medium, only once representing more than one quarter of the total population. In Stoke-upon-Trent the small category grew

considerably at the expense of all other categories. It seems that the average RV figures presented in Tables 2:1 and 2:2 suggested a more thorough restructuring of the industry than was in fact the case. The business environment of the Potteries continued to be characterized by a mass of small, competing firms. Moss, as was shown in chapter 1, devotes much energy to relating the competitive structure of industries and markets to business behaviour and strategy and his arguments will be developed in the context of the Potteries in the late nineteenth century throughout this work, particularly in chapters 4 and 6. The business structure revealed here is clearly also significant in terms of Elbaum and Lazonick's attack on the constraining influence of the 'atomistic' structure of British industry, an approach being pursued by others, including Wilson (13).

Was the industry becoming more concentrated at this time though, despite the continued numerical dominance of small firms? In order to gauge this a measure of industrial concentration is required and again RVs can serve as a rough proxy in the absence of reliable data on output or employment for the industry in the nineteenth century. Measures and estimates of industrial concentration remain tentative and, on occasion, controversial. However, a convention of adopting a tripartite structure of concentrated, medium concentrated and unconcentrated industries does seem to be emerging and has been deployed in previous historical studies of industrial structure (14). Table 2:11 shows the estimates offered by the most detailed British and American studies.

TABLE 2:11: A GUIDELINE TO INDUSTRIAL CONCENTRATION RATIOS.

Industry Type	Estimates of Everley and Little (3 largest firms) %	Estimates of Kayser and Turner (4 largest firms) %
Concentrated	67	50+
Medium Concentrated	33-66	25-49
Unconcentrated	-33	-25

Source: Lloyd-Jones and Lewis (1988)

The industrial structures of Hanley and of Stoke-upon-Trent have been subjected to analysis under both schemes of measurement and again the process has been followed through time

in order to detect any shifts that may have occurred. The results are given in Tables 2:12 and 2:13.

TABLE 2:12: ESTIMATES OF INDUSTRIAL CONCENTRATION IN HANLEY, 1862-1882

	% of 3 largest firms to total RV	% of 4 largest firms to total RV
1862	39	49
1872	33	41
1882	29	37

Source: Hanley Rates Books, 1862,1872 & 1882.

TABLE 2:13: ESTIMATES OF INDUSTRIAL CONCENTRATION IN STOKE-UPON-TRENT, 1878-1898.

	% of 3 largest firms to total RV	% of 4 largest firms to total RV
1878	60	72
1886	59	71
1898	51	62

Source: Stoke-upon-Trent Rate Books, 1878,1886 & 1898.

If we consider the results obtained under both schemes of measurement then the pottery industry in Hanley clearly straddled the border between unconcentrated and moderately concentrated whilst in Stoke-upon-Trent, which it must be remembered was somewhat atypical, it lay across the boundary separating concentrated and medium concentrated. Perhaps more important than the absolute levels of concentration, which have to be recognized as very approximate, is the direction in which shifts occurred over time and of which it is possible to be more certain. In both boroughs the tendency is clearly for the industry to become less concentrated at a time of increase in the overall population of firms (15). This finding will prove to be of significance when considering a number of aspects of business strategy characteristic of the district in the last decades of the century. Certainly important in this context was the inability of the industry to avoid price competition as the competitive environment became more hostile. The three and four largest firms in Hanley and Stoke-upon-Trent are shown in Appendix A, Tables: 2 & 3.

The absolute growth of the industry throughout this period has so far gone largely unremarked, and trade directories show that such growth was not restricted to those parts of the city for which rate books survive. Between 1865 and 1882 the number of firms in Longton increased from 69 to 93 and in Burslem from 49 to 79. Only in Tunstall did the number of firms fall in this period, from 21 to 16 (16). In order to explore the mechanisms that lay behind this growth it is necessary to address the twin questions of the nature of entry into the industry and of the morbidity and mobility of firms, particularly small firms.

Discussion in British business history of the growth of industries has to a large extent been conditioned by the work of Alfred Marshall and in particular by his 'trees of the forest' analogy, which proposed that a circular mobility, from the bottom upwards and the top down, is largely responsible for the growth and regeneration of both industries and the firms of which they are composed. Lloyd-Jones and La Roux, building upon the critique developed by Joseph Steindl, have subjected the 'Marshallian growth path' to an empirical test in the context of the cotton industry in the first half of the nineteenth century (17). Beginning by calculating the proportion of exit, static and mobile firms in the population of 1815 they concluded that there appeared to 'be strong support for Steindl's claims that small firms wither away in large numbers before they had any opportunity to grow' (18). They also show both that the number of exit firms was high and the number of mobile firms low, and that between 1815 and 1833 the size structure of the industry shifted decisively away from the small towards the medium and the large (19). Furthermore, that shift in size structure had come about through entry at medium or large size and not through upward mobility. For example, 45% of all large firms in 1833 were entry firms (20). They conclude

The evidence for the cotton industry therefore does not appear to support Marshall, since it was the entry firm rather than the upward mobile firm that acted as a catalyst for change in firm population structure...Firms did not grow by the laborious Marshallian route, starting small and gradually growing to maturity. (21)

Lewis too orientates his examination of growth in the Sheffield iron and steel industries around Marshall's analogy but his findings produce very different conclusions (22).

According to Lewis Steindl's proposition of a negative correlation between mortality rates and firm size 'is not supported by the Sheffield evidence' (23). Lewis demonstrates a survival rate of 59% amongst small firms between 1880 and 1901 and, in the same period, a mobility rate of 17% amongst small firms (24). In general his work provides confirmation of Marshall. The contribution that evidence from the pottery industry has to make to this debate is unequivocal. Taking Hanley between 1872 and 1882 as a preliminary guide we find a survival rate amongst small firms of 57% and a mobility rate for the same category of 32% (25). A biographical history of the population of firms in Hanley in 1882 provides further detail and is presented in table 2:14.

TABLE 2:14: BIOGRAPHICAL HISTORY OF 66 FIRMS IN HANLEY IN 1882.

Type of firm	Small		Medium		Large		Giant		Total	
	No	%	No	%	No	%	No	%	No	%
Survival										
Static	8	20	6	35	2	67	1	20	17	26
Mobile										
Up	0	-	9	53	1	33	4	80	14	21
Down	0	-	0	-	0	-	0	-	0	-
All	8	20	15	88	3	100	5	100	31	47
Entry	33	80	2	12	0	-	0	-	35	53
Total	41	100	17	100	3	100	5	100	66	100

Source: Hanley Rate Books, 1872 & 1882.

It is clear from this data that mobility had made a considerable contribution to the composition of the medium, large and giant size categories. Indeed, entry had no role to play at all in the growth of the two largest size categories and was significant only amongst small firms. Evidence of the importance of mobility over entry is decisively reinforced by a similar biographical history for the population of firms in Hanley in 1872, Appendix A, Table 4. Again entry firms had made no contribution to the large and giant size categories. Of the 5 large firms of 1872, the pool from which 4 of the 5 giant firms of 1882 grew, 4 had displayed upward mobility from the medium size category between 1862 and 1872. Similarly, the one giant firm of 1872, Brown-Westhead, Moore and Co. (RV £1524) had been a large firm in 1862 (RV £528) (26). The much smaller group of small firms in Stoke-

upon-Trent showed even greater tenacity and growth potential. Between 1879 and 1886 the much smaller total population of firms in the borough displayed a survival rate of 67% and a mobility rate of 33% amongst small firms (see Appendix A, Table: 5 for a biographical history of the population of firms in the borough in 1886).

For the towns without extant rate books rough estimates of survival but not mobility rates have been made via a study of the trades directories. These suggest survival rates amongst all firms of 31% for Burslem and 26% for Longton between 1865 and 1882 (27). These figures are considerably lower than those obtained for either Hanley or Stoke-upon-Trent via the rates books but it must be stressed that they are conservative estimates that include only those firms that were definitely survivals. There were further firms that may have been survivals but of which, in a district with a strong stock of common familial names, and without corroborating evidence, it is impossible to be sure. Furthermore, the directories cannot be relied upon to be either exhaustive or fully accurate in their listings.

In general, the ancillary trades traced a pattern of development very similar to that of the manufacturing industry. In Hanley the years 1862 to 1882 witnessed a steady increase in both the population of firms and of the average RV, from 22 to 39 and from £60 to £125 (28). Firms in the small size categories predominated throughout the period, representing 86% of the total in 1862 and 69% in 1882 (29). Many of these were very small concerns, such as that of Henry Toft of Stoke-upon-Trent, a copperplate engraver with two premises with a combined RV of £17 in 1886 and 1898 (30). There were no large firms amongst the ancillary trades of Hanley until 1882. Of the three in that year two were in fact parts of the very large china and earthenware concerns of J.& G. Meakin and Joseph Clementson. Whilst between 1862 and 1882 the average RV of ancillary firms rose and the first large-size firms appeared, industrial concentration, in line with the rest of the industry, declined but was still moderately concentrated under both schemes of measurement in 1882. Of the overall population of firms in 1882 46% were survival firms and 13% mobile (31). The structure of the ancillary trades will be examined in much greater detail in chapter 7 in the context of an exploration of patterns of integration in the industry.

Clearly it was entry into the small and medium size categories and then growth from that point which had generated the industrial structure of the pottery industry of the late nineteenth century. As with Sheffield in the same period Marshall's 'trees of the forest' analogy does provide a useful encapsulation of the growth mechanism in the pottery industry, the mass of small firms evident in the categorization of the industry by size was a fertile resource for further growth (32). These conclusions lead to two further areas of enquiry, one concerned with the conditions in which this pattern was able to emerge and persist, and the second with the implications of this pattern of growth for business behaviour and strategy. To a considerable degree these issues, broadly construed, form the basis for the remainder of this work.

It has already been argued that the generally small scale of the pottery industry combined with a lack of concentration produced a highly competitive business environment conducive to some forms of business strategy and inimical to others. Price competition and uncertainty tended to conspire to inhibit investment programmes, especially in productive processes, through restricting the profits available for retention and reinvestment or by rendering possible outcomes unclear. Moreover, it will be shown in chapter 8 that many nineteenth century observers, particularly those from the larger and more 'respectable' firms, argued that to a very great degree these problems arose from the workings of a mistaken and damaging belief that the pottery industry offered a genuine opportunity to the small and very small capitalist. This representative comment, concerning what it termed 'manufactories in miniature', appeared in The Pottery and Glass Trades Gazette (hereafter referred to as The Pottery Gazette) in May 1884:

Whether or not this increase in producing power is wise or not remains to be seen. At present we hardly think it is so. Small capitalists appear to have lacked discretion so far as the potting industry is concerned. (33)

The data presented here have shown that a belief in the possibility of mobility through independent manufacture amongst the owners and the potential owners of the smallest firms

was not so unreasonable, and is important in contextualising explorations of business culture in the Potteries. Evidence of considerable upward mobility between size categories is also of importance in the debate surrounding the alleged failure of British capitalism in the late nineteenth century and more particularly the lack of dynamism displayed by business structures characterized by personal or familial capitalism, as the ceramic industry undoubtedly was at this time. Lloyd-Jones and Lewis have shown in a study of Sheffield firms in the period 1880-1920 that assumptions of an almost inherent absence of dynamism in British personal capitalism of this period have been too readily made in the past (34).

The concentration shown here, and in other studies of industrial structure, on upward mobility amongst firms can lead to a neglect of the significant numbers of firms which survived but were static. Certainly all size categories in the population of firms studied here displayed examples of static survival. Sometimes this cloaked a steady growth that was never sufficient to cross size category boundaries. Such a case is that of George Ashworth & Bros., earthenware manufacturers. In 1862 their premises on Broad Street, Hanley had an RV of £241. By 1872 the brothers were described in Kelly's Directory as ironstone, china and earthenware manufacturers and their works, still on Broad Street, had an RV of £386. In 1882 the RV of the Broad Street site had risen once again to £434 (35). Others could survive for quite long periods without displaying any significant growth. In 1862 the partnership of Wardle and Ash occupied a manufactory, again in Broad Street, Hanley, with an RV of just £12, they received no mention in Slaters Commercial Directory of that year. By 1872 the partnership had been dissolved and G. Ash, described in a directory as a Parian manufacturer, was in premises with an RV of £33, by 1882 that had increased to just £44 (36). Ash's former partner fared much better in comparison. In 1882 he was in business as Wardle and Co. with a D. Jones. This partnership occupied two works with a combined RV of £211 (37). Yet others grew quite dramatically before stopping, perhaps confirming Moss's conclusion that 'organizational structure imposes a limit on the size of any particular firm' and that not 'every firm which reaches the limit of the scale and scope which can be supported by its organizational structure simply invents a more appropriate structure' (38). In 1862 Wm. Livesley and E. Powell occupied two manufactories in Hanley with a combined RV of £246. By 1872 Powell along with J.W. and Frederick Bishop, his former

landlords, was at the helm of a far bigger enterprise spread across four main works and with a combined RV of £895. The business combined the functions of earthenware manufacture and potters' mill. Between 1872 and 1882 some rationalization took place and the number of sites occupied dropped to three. Although some of these premises, such as the original works at Miles Bank, appear to have grown considerably the combined RV of the firm was almost identical at £897 (39).

Some of the conditions from which the structure reconstructed here emerged will now be examined. Perhaps most important was the low fixed capital intensity of an industry which, by 1870, had yet to undergo extensive mechanization. Low fixed capital intensity resulted in low entry costs and was central to maintaining the flow of entry firms to the small and medium-size categories in which much of the growth of the industry originated.

Evidence for the low capital requirements of entry firms is generally indirect but still sufficiently convincing. Notices of bankruptcy in the pages of The Pottery Gazette often contained details of not only the liabilities and assets of the firm concerned but also of its origins and the method and level of financing involved. Clearly operating on a very small-scale for example was H.B. Preece of the Clyde Works, Burslem whose creditors met on January 13th 1893. His liabilities amounted to 113 guineas, 7s and 8d, whilst his assets consisted only of 'the utensils used in the business (which) would not, if sold, realize more than five guineas' (40). Slightly more substantial was the enterprise of Daniel Cotton, another bankrupt, who in September 1892 had entered in to partnership with Edwin Roberts, Cotton investing 100 Guineas and Roberts 45. By February of the following year, at the time of the death of Roberts in an accident, the partnership had accrued liabilities of 459 guineas (41). Such partnerships were a common method of acquiring these relatively modest funds and could frequently be dissolved, reformulated or supplemented. The other main source of entry capital was the family. Perhaps typical were three brothers, William, Edward and Albert Brookfield of Longton. In January 1893 they

commenced business in Parkhall Street, Longton. He (Wm.) put into the business 300 guineas, and his brothers put in 60 guineas each. Twelve months later Wm. Ball joined the firm for the purpose of providing additional capital, and he put into the business 120 guineas, subsequently adding another 60. (42)

Interestingly it was noted that William Brookfield 'also travelled for his father, and got wages in that way' (43). In another example, from 1894, Harry Warrilow began in business with a loan of 250 guineas from his mother and continued in business, until bankruptcy intervened, with the aid of a further loan of £350 guineas from the same source (44). These small entry firms were further aided by a ready second-hand market in the little equipment that they did need, a market itself largely supplied by a steady stream of exit firms, small or otherwise:

Sales are the order of the day....sales by auction of working plant and stocks in-trade at the various manufactories whose proprietors have either been 'unfortunate' or have taken time by the forelock and have ceased to manufacture for the mere fun of the thing. This is the time that a small manufacturer with a little capital to spare is able to pick up some good bargains in the form of engravings, or plant or saggars.(45)

Similar factors probably played a part in the development of the structure of the boot and shoe trades and in the Sheffield cutlery industry.

The small firm was further encouraged to enter the industry by the rentier nature of the industrial district and the ready availability of empty premises. Analysis of the population of firms in Hanley in 1882 reveals a clear bias towards renting, almost without exception of whole units or premises. This evidence is presented in Table 2:15

TABLE 2:15: FORMS OF PROPERTY OCCUPATION AMONGST 66 HANLEY FIRMS IN 1882.

Form of Occupancy	Renting		Owning		Mixed	
	No.	%	No.	%	No.	%
	39	59	26	40	1	1

Source: Hanley Borough Rate Book, 1882.

Renting was particularly prevalent amongst small firms, some 73% of that category rented. A slim majority of medium-size firms rented their premises, whilst no large or giant firms, with the exception of Brown-Westhead, Moore and Co. who were the single firm of 1882 both renting and owning premises, rented. Evidence from Longton emphasizes the prevalence of renting and the strong correlation between firm size and form of occupancy and is presented in Table 2:16.

TABLE 2:16: SIZE OF FIRMS AND FORM OF OCCUPANCY IN LONGTON, 1847.

Size Category	Renting		Owning		Mixed		Total	
	No.	%	No.	%	No.	%	No.	%
Small	23	85	4	44	1	25	28	70
Medium	4	15	5	56	3	75	12	30
Total	27	100	9	100	4	100	40	100
% of Total Population	27	67.5	9	22.5	4	10		100

Source: Stoke Parish Rates for Longton, 1847.

Moreover, of the 3 mixed occupancy firms 2 were the only ones in the borough with an RV of more than £400 (46). As with plant of all kinds the trade press carried frequent advertisements for properties available for rent or lease, and again the trade press increasingly came to lament the tempting opportunity this represented to the small capitalist contemplating entering the industry.

Once established self-finance through retained profits was the preferred source of funds for further fixed capital investment. Evidence from the pottery industry therefore supports the conclusion of Wilson and others that 'highly localised and personal...relationships' formed the 'bedrock of...nineteenth century business organisation and finance' (47). However, as prior to 1870 the rate of mechanization in the pottery industry was determined to a large degree by technological factors it is hard to conclude that these often informal methods of securing long-term finance had, up to that point at least, acted as a significant constraint on the growth of the industry. From 1870 though, mechanization gathered pace, casting the clear persistence after that time of a reliance on the traditional sources of investment finance in a rather more critical light. However, as will be argued shortly, perhaps more important than the availability of alternative forms of finance was the willingness of businessmen in the Potteries to make use of them.

If the fixed capital requirements of the industry were often quite low, because of limited mechanization, then, for much the same reason, the demand for working capital was relatively high. Limited mechanization was accompanied by a central role for skilled and expensive labour and constant spending on a wide range of materials. At the wage arbitration of 1879, Mr. Hammersly of the Brownhills Pottery Co. of Tunstall testified that in that year wages had represented 47% of turnover, and E.J. Ridgway of Ridgway, Sparks and Ridgway estimated that wages and materials taken together represented 76% of turnover (48). This problem was perhaps most pressing for the small manufacturer, as it was noted in 1899 'he wants sovereigns (sic) at the end of the week. The getting of these has ruined hundreds of small men' (49). It is probable that in the pottery industry, as elsewhere, working capital was the dominant component in business finance, revealing, as Wilson argues, 'the tremendous pressures imposed on businessmen by their asset structure', and it seems true that in the Potteries 'while few looked outside the firm for fixed investment purposes, they willingly relied on several external sources for working capital' (50).

Perhaps the most important of these external sources was that supplied by credit circuits, which thus played an important role in maintaining not only inter-firm networks in the

district but also the business structure of the industry. Just as the very existence of small firms was regretted by some sections of the industry so the system and habit of giving credit was identified as having a particular role in sustaining the most injurious class of small manufacturers. The following is from The Pottery Gazette of January 1883 and neatly encapsulates the complaint.

It has been suggested by several manufacturers that the present system of credit should not continue. Credit is far too cheap, thereby enabling people to start manufacturing in a small way without enough capital to carry on with. What is the consequence? They have to sell at ruinous prices, thus bringing down the prices of other houses, and after a short time in business... collapse. (51)

However, as the evidence makes clear, the bulk of this credit was extended by the industry itself. Again sources of finance were localized and personal, depending very often on the existence of trust, promoted in turn by the spatial clustering of the industry. Hawley and Brerton, earthenware manufacturers of the Lichfield pottery, Hanley, were declared bankrupt in 1890 with liabilities of £425 and assets of £173. All ten creditors were businesses located within the district and involved in potting and its ancillary trades, they included other pottery manufacturers, stilt and spur manufacturers, and colour makers. The debts ranged in size from £11 to £85 with the majority being for less than £20. No bank was owed any money (52). In a similar case 17 out of the 24 creditors of C.A. Vernon and Co. of Cobridge were drawn from the industry and included highly reputable manufacturers such as Keelings of Stoke-upon-Trent (53). Nor was credit utilized solely by the small or young firm, as was revealed by the bankruptcy of E.J.D. Bodley of the Hill Pottery, Burslem in 1893. The Pottery Gazette commented 'that a firm, which, when sold up, realises no more than this, should have been able to carry on business so long, is one of the misfortunes of our long credit system' (54). Such credit networks were common to many other British industries in the nineteenth century. Hudson has investigated the 'credit matrix' which underpinned the West Yorkshire woollen trade, the kind of feature characterized by Pollard

as a 'web of credit' (55). A more detailed examination of the role and operation of credit in a particular business system within the district will be made in chapter 7.

Credit was on occasion supplemented by other sources of working capital, including bank loans and overdrafts (56). However, anecdotal evidence suggests that as both internal and external conditions became more competitive during this period a shortage of working capital was being experienced by some. It was observed in September 1896 that 'On every side one hears complaints of the scarcity of money, and the period of credit demanded by the home trade is ever displaying a tendency to increase. This necessitates a greater amount of capital being at the command of the manufacturer, which it is not always practical to obtain' (57). Though the evidence is not conclusive the possibility that existing methods of financing were beginning to constrain the industry at this time must be considered.

The principal form of organizational structure adopted by the firms of the North Staffordshire pottery industry throughout the nineteenth century was that of personal or familial capitalism. There was a strong correlation between ownership and management and little development of professionalized managerial structures. This is perhaps not surprising in an industry composed predominantly of small-scale business units and in which upward mobility had been the primary motor for growth. Moreover, as will be shown in chapter 4, the nature of both technology and work practices within the industry tended also to protect personal capitalism by minimizing the need for management to carry an onerous supervisory burden. Truly multi-generational business dynasties, epitomised by Wedgwoods, may have been rare and partnerships often used to buttress the human and financial resources of families, but at the close of the century the family remained central to organizational structures across all size categories in the industry. Detailed examination of the role of the family in two very different firms will be made in chapters 5 and 7.

There is little evidence of a diminution of this principle in the period under study, even amongst those firms registering as limited liability companies. Registration itself was not common and it seems to have rarely represented a significant alteration to either the ownership or the management of the business. In the final two decades of the century the

trade press reported the registration or re-registration of 22 companies in the industry, including both ceramic manufacturers and ancillary firms. No less than half of these registrations took place in the years 1898 to 1900. The largest share issue was for £120,000 and the smallest £1,000 (58). The majority of firms registering were drawn from the northern townships of Hanley, Burslem and Tunstall, traditionally seen as the location of the biggest and most prosperous firms within the industry, and indeed the two Longton firms registering had the smallest and second smallest share issues. See Appendix A, Table: 6 for detail of these firms.

It is possible to discern behind the act of registration a range of motivations, few of them concerned with transferring ownership or control, or with securing new sources of capital. In many cases it appears that registration was a simple act of consolidation. Such an example might be that of the registration of Harrison and Son Limited, of Hanley in May 1900 with a capital of £50,000 in £10 shares. The purpose of registration was to 'acquire the business now carried on by Thomas W. Harrison and Sydney T. Harrison, under the style or firm of Harrison and Son....and to carry on the business of potters' colour and glaze makers', that is to secure limited liability (59). In the Hanley Rate Book of 1882 the firm of W.R. Harrison and Son were the owners of the Phoenix Chemical Works in Bath Street, occupied by W.R. and T.W. Harrison and with an RV of £62. In 1872 W.R. Harrison had occupied but not owned premises in the same street with an RV of £38 (60). The firm must have grown considerably by the time of registration in 1900 for, by way of comparison, George Jones and Son of Stoke-upon-Trent who registered in 1894 with a capital of £48,000, had an RV of £1138 in 1898 (61). For the Harrison family business registration occurred only after thirty years of steady growth and the direct involvement in the firm of three generations. Moments of dynastic succession were often seen as an appropriate point at which to alter the status of the firm, as was the case at Davenports, Messrs. Wm. Davenport and Co. Limited being registered in 1882 in order to acquire the 'potworks, china (and) earthenware manufactories.... hitherto belonging to Mr. Henry Davenport' (62). Registration could also represent rationalization of the structure of a business or group of businesses. John Maddock and Son Limited was formed in 1896 with a capital of £75,000 and the object of acquiring

as a going concern....the business of earthenware manufacturer, stilt and spur manufacturer and stone flint grinders hitherto carried on at Newcastle St., Burslem under the style of John Maddock and Sons, and at the Dale Hall Pottery, Burslem under the style of Maddock and Co. (63)

The signatories included J., J.F., A.H. and R.J. Maddock, all of Burslem, F.W. Llewellyn of Alsager in Cheshire and E.B. and H.B. Allerton of Longton and Blyth Bridge respectively, both in the Potteries. The Maddock family clearly retained a central interest in the firm.

Even in the case of James Macintyre and Co., where the registration of 1893 took place 'in accordance with an agreement expressed to be made between Wm. Woodall M.P. of the one part and this company of the other part', the degree of change was limited. Woodall was son-in-law to Macintyre and had already been taken into the business (64). Moreover, of the eight initial shareholders four were from the Woodall family. William Woodall, of Bleak House, Burslem, was the Liberal M.P. for the Borough of Stoke-on-Trent from 1880 and then for Hanley from 1885 to 1900. Corbett N. Woodall, also of Burslem, was a potters' manager. Corbett Woodall, an engineer, and Henry Woodall, a gentleman, were of London and Llandudno respectively. Between them the Woodall family held 864 of the 1,755 £10 shares taken up. Other shareholders were G.R. Gilbert, a Government Inspector of London, Henry Watkin, a potters' manager of Burslem, Susan Hay, gentlewoman of London and Ernest Bullock, accountant of Newcastle, Staffs. Respectively they held 600, 250, 40 and 1 shares. Between registration in 1893 and the end of the century neither the number of shareholders nor the actual shareholders and their individual stakes had displayed any change at all (65). For James Macintyre and Co. Limited registration occurred in the context of a static organizational structure, in which familial control and management remained closely linked, and resulted in no injection of external capital. The same thing happened at Minton's Ltd. where a dilution of family control was again fiercely resisted. Reliance on the family or trusted local networks for either managerial skills or sources of capital shared common origins in the disintegrated structure and individualistic business culture of the industry.

It has been the purpose of this chapter to establish and explore the basic structural characteristics of the ceramic industry of North Staffordshire in the latter half of the nineteenth century. Small-scale firms based in personal or familial capitalism have emerged as the predominant form of business organization in the district. Both that structure, and the conditions shown to be associated with it, will now be used to inform further examination of business strategy and business culture in the industry. In addition, this chapter has exposed some of the tensions that existed within this tightly-spatially clustered industry. Those tensions may in part be understood as an element of the business culture of the Potteries 'industrial district', but they also had their roots in intensifying competitive pressures as the number of firms grew and average firm size and industrial concentration declined. This was the context in which firms in the industry had to operate as they faced the growing challenge of foreign industries, a competitive constraint that is the subject of the next chapter.

NOTES AND REFERENCES.

1. The Pottery Gazette, November, 1879, p.428.
2. The Pottery Gazette, May, 1883, p.451.
3. Whipp, for example, acknowledges the variegated structure of the industry, but only on a general level and without detailed evidence. He is, however, right to note that in terms of process at least 'No simple distinction existed...in the industry between large and small firms....all firms had to use skilled potters' and, organizationally, 'common to all levels of the industry's structure was the family basis of the firm....native families of potters supplied the capital and basic managerial skills'. Whipp, R. Patterns of Labour, Work and Social Change in the Potteries, 1990, p.127 & p.23.
4. Moss defines the firm as 'a collection of productive resources with organizational structure', asserting the importance of structure in this equation by further noting that there is 'nothing to distinguish the boundaries of the firm-the specific collection of resources comprising one firm, but not its suppliers or customers-except an organizational structure', Moss, 1981, p.16 & p.18. This defining organizational structure should perhaps be seen to include not only particular personnel and the hierarchies in which they are arranged but also the principles those hierarchies articulate.
5. Wilson, 1995, p.59. Wilson expands on this observation by noting that while it 'was a system which had undoubted advantages, one can discern here a dangerous tendency to subcontract the vital function of marketing, reducing the ability of individual firms to detect and follow customer requirements'. Ibid., p.59. Marketing is of course one of the elements in the three pronged investment strategy that Chandler argues defines modern corporate business.
6. The industry supplying the chemical and electrical industries, being almost without precedent, showed some differences to the traditional industry, processes were more mechanized and the products had to meet tight technical specifications, leading to the employment of trained chemists and ceramicists. Still, this new trade yet bore traces of the much older craft that surrounded it. Moreover, it was as yet much smaller in scale. The Census of Production in the United Kingdom 1907 recorded for that year the total value of the output of common ceramic goods, amounting to £6,420,000, the output of earthenware alone was valued at £3,233,000. In comparison 'other pottery', including chemical, electrical, and door furniture, was valued at £149,00, p.750.
7. Lloyd-Jones, R and Le Roux, A.A. 'The Size of Firms in the Cotton Industry: Manchester 1815-1841' Economic History Review, XXXIII, 1980, Lloyd-Jones and Lewis 1988, Timmins, 1982, Lewis, 1989.
8. Whipp, R. "'The Art of Good Management" Managerial Control of Work in the British Pottery Industry, 1900-1925' International Review of Social History, Vol.29, Part 3, 1984. Clearly these firms persisted after the turn of the century for Whipp says that 'at the opposite extreme to Wedgwood or Johnsons were the back-street operations of men such as James Shaw. In 1924 he was in business on his own, "modelled all his own creations, made his own moulds, and under-took the pottery throughout, whilst he relied upon his two daughters to undertake the decoration"'. Ibid., p.362-3.
9. Lewis 1989, p.29. Though Lewis found that the average size of firm in the Sheffield steel, tool, and cutlery trades was medium he goes on to note that 'The data shows

- that small firms formed a significant proportion of the industrial structure.... This suggests an industry dominated by small private competing firms which would in turn affect the strategies adopted by firms. According to Utton, "The number and size distribution of firms in individual industries are evidently closely bound with their behaviour and performance". Ibid., p.34.
10. Ibid. p.29. Lewis examines three possible ways to construct industry classifications; differences in product type, differences in selling market, and differences in technical processes. None lead to any real clarity in the context of the Potteries.
 11. Timmins, 1982, Lloyd-Jones and Lewis, 1988 (see chapter 3), Lewis, 1989 (chapter 2).
 12. Lewis, 1989, p.33.
 13. Elbaum and Lazonick claim 'Britain was impeded from making a successful transition to mass production and corporate organization in the twentieth century by an inflexible nineteenth-century institutional legacy of atomistic economic organization' 1987, p.15. In fact many of those factors which they believe characteristic of this legacy, numerous small firms, simple internal organization, rule-of-thumb, internal or informal sources of finance, control of shopfloor shared with labour, were to be found in the pottery industry. Wilson echoes this thesis when he claims that business culture was 'one of the principal "institutional rigidities" which hindered British industrial competitiveness', 1995, p.59.
 14. Lloyd-Jones and Lewis, 1988, Lewis, 1989.
 15. Concentration appears to have increased slowly in the first quarter of the twentieth century. Whipp reports that by 1920 a small group of leading firms, which included Wedgwoods, Johnsons, Mintons, Doultons, Grimwades, Maddocks, Grindleys, Meakins and Copelands and represented around 10% of the total population of firms at that time employed around 25% of the total workforce in the industry. Whipp, 1990, p.126.
 16. Keates' Annual Street and Trade Directory 1865-6, Keates and Ford, Hanley.
 17. Lloyd-Jones, R. & La Roux, A.A. 'Marshall and the Birth and Death of Firms: The Growth and Size Distribution of Firms in the Early Nineteenth Century Cotton Industry' Business History, Vol. XXIV, No.1, 1982.
 18. Ibid., p.143.
 19. Ibid., p.145.
 20. Ibid., p.147.
 21. Ibid., p.146.
 22. Lewis, 1989, p.37-8.
 23. Ibid., p.39.
 24. Ibid., p.37.
 25. Hanley Rate Books, 1872 & 1882.
 26. Hanley Rate Book, 1862.
 27. Keates and Ford, 1865 & 1882.
 28. Hanley Rate Books, 1862 & 1882.
 29. Ibid.
 30. Stoke-upon-Trent Rate Books, 1886 & 1898.
 31. Hanley Rate Book, 1882.
 32. Lewis, 1989, p.38. As Lewis notes 'It is worth recounting that Marshall referred only to a small number of "young trees growing up to maturity" and warned that "many

- succumb on the way”’.
33. The Pottery Gazette, May, 1884, p.536.
 34. Lloyd-Jones, R. & Lewis, M. ‘Personal Capitalism and British Industrial Decline: The Personally Managed Firm and Business Strategy in Sheffield, 1880-1920’ Business History Review, Vol. 68, Autumn, 1994. The authors conclude that ‘Sheffield firms in the specialty-steel sector did invest in manufacturing and marketing, but their reluctance to invest in managerial hierarchies that would undermine their personal control did inhibit their business success’, p.408.
 35. Hanley Rate Books, 1862, 1872 & 1882. Post office Directory of Staffordshire, 1872. E.R. Kelly (Ed.) Kelly & Co. London.
 36. Ibid.
 37. Hanley Rate Book, 1882.
 38. Moss, 1981, p.27.
 39. Hanley rate Book, 1862, 1872 & 1882.
 40. The Pottery Gazette, February, 1893, p.127.
 41. The Pottery Gazette, June, 1892, p.535.
 42. The Pottery Gazette, June, 1898, p.742.
 43. The Pottery Gazette, August, 1898, p.1000.
 44. The Pottery Gazette, January, 1898, p.71.
 45. The Pottery Gazette, November, 1892, p.1023.
 46. Hanley Rate Book, 1882 & Stoke Parish Rates for Longton, 1847.
 47. Wilson, 1995, p.47.
 48. The Pottery Gazette, December, 1879, p.472.
 49. The Pottery Gazette, December, 1899, p.1393. This problem was barely eased by the fact that the ‘friendly firms upon whom he has relied may give him credit for goods’ As Wilson notes ‘The importance of securing adequate short-term funding is now recognized as the key ingredient ensuring business survival’, 1995, p.51. For detailed examination of the role of credit in the pottery industry both prior to and during the earliest stages of industrialization see Weatherill, 1971 & Weatherill, L. ‘Capital and Credit in the Pottery Industry Before 1770’ Business History, Vol.24, 1982.
 50. Wilson, 1995, p.51.
 51. The Pottery Gazette, January, 1883, p.62.
 52. The Pottery Gazette, May, 1890, p.456.
 53. The Pottery Gazette, July, 1895, p.533.
 54. The Pottery Gazette, February, 1893, p.160.
 55. Wilson, 1995, p.51-2.
 56. Thus, when the firm of potters’ engineers, Hartley, Arnoux and Fanning failed in 1893 they had an overdraft of £4,619 at the National Provincial Bank and when Messrs. Fenton and Sons, manufacturers of Hanley failed in 1899 it was felt that the ‘chief point of interest is the amount of the bankrupt firm’s indebtedness to the bank. One would say that there are few manufacturers in the district with persuasive powers sufficient to get an overdraft of nearly thirty thousand pounds from their bank managers-a class of beings more ready to strain at gnats than to swallow camels’ The Pottery Gazette, March, 1893, p.249 and March, 1899, p.329. It will also be shown in chapter 5 that bank overdrafts played a role in the survival of Minton during the 1890s.

57. The Pottery Gazette, September, 1896, p.714. As early as 1882 it was being asserted that 'Manufacturers in the future will require a substantial capital to back them up, in order to stand secure' The Pottery Gazette, June, 1882, p.549.
58. The Pottery Gazette, 1880-1900.
59. The Pottery Gazette, May, 1900, p.529.
60. Hanley Rate Books, 1872 & 1882.
61. The Pottery Gazette, May, 1894 p.7 & Stoke-upon-Trent Rate Book, 1898.
62. The Pottery Gazette, October, 1882, p.867.
63. The Pottery Gazette, March, 1896, p.218.
64. The Pottery Gazette, February, 1893, p.6.
65. Summary of Capital & Shares, James Macintyre & Co. 1893-1900 Companies House.

3: COMPETITIVE CONSTRAINTS AND THE POTTERIES, 1880-1900.

This chapter will explore the range of constraints experienced by the pottery industry in the late nineteenth century, a period seen by many in the industry as one of near crisis. Contemporaries identified the rise of foreign competition as perhaps the greatest challenge to, and potential constraint on, the further growth and development of the industry in North Staffordshire. In this judgement they were undoubtedly right. However, in probing that general proposition this chapter will also argue that in order to understand the impact of foreign competition it is also necessary to establish the context in which that emerging challenge was faced. Thus, the chapter will first examine general trends in the volume and value of British ceramic exports in this period as a means of entry into a discussion of the cost and demand structures of the industry in North Staffordshire. This discussion will draw on the structural, institutional, and cultural characteristics of the industry outlined in chapter 2. Establishing the constraints and competitive challenges faced by the industry will in turn provide the context for the examination of strategic responses in chapters 4-6. However, the relationship between constraint and response is a complex one. How might this problem be addressed?

Moss conceptualises the relationship between constraint and response in terms of focus and inducement effects, arguing, for example, that 'Inducement effects turn on....forces arising from competition among firms'. However, useful though it is, Moss's model remains highly functional. Indeed Moss makes reference to an 'inducement mechanism' (1). It is argued here, in contrast, that any discussion of the relationship between constraint and response must also recognise that the actual nature and extent of any constraint and the perceptions of it prevalent within an industry or firm will not necessarily be congruent. Thus, for example, the threat posed by foreign competition was very often played down in the Potteries as a result of the belief that there existed a significant and highly advantageous quality gap between British and foreign wares. Similarly, attempts to address the issue of domestic over-capacity, or to avoid price competition, were inhibited as much by the individualistic priorities of many in the industry as by its atomistic structure. It can be seen that constraint and the way in which it is perceived are often different from one another, and it is perhaps in the latter that the prime determinants of the business strategies adopted within an industry will be found.

How can this gap be handled by the historian? Seventy years ago R.H. Tawney asserted that 'because doctrine and conduct diverge it does not follow that to examine the former is to hunt abstractions. That men should have thought as they did is sometimes as significant as that they should have acted as they did' (2). These are not objective matters readily accessible to empirical investigation and they mark the reappearance here of the concept of business culture, seen in the preceding chapter in the commitment of the pottery industry to personal capitalism. In 'Entrepreneurship and Business Culture' (3) Casson sets out to replace neo-classical assumptions concerning motivation and decision making in the field of economic action with 'specific postulates as to how people handle information within a social environment' (4). It is in the social dimension to economic activity that both the 'subjectivity of problems' lies and the roots of business culture are located (5). For Casson the subjectivity of problems is a function of how they are perceived in terms of both their identification and their solution. Moreover, in terms suggestive of a discrepancy between the two, he contrasts perception with 'the reality of problems' (6). Attention to the relationship between the competitive constraints facing the ceramic industry and how they were perceived provides then a rough map to the handling of information within a specific social environment and an introduction to a business culture.

Uncertainty was a powerful factor in the relationship between constraint and perception. Casson identifies 'novel and complex situations where objectives are ambiguous', such as the period of increased competitive challenge witnessed in the last quarter of the nineteenth century, as those in which decision-making becomes both more important and more acute (7). Moss too emphasises the Keynesian concept of uncertainty, particularly in terms both of the competitive process and the formulation of strategy. The 'uncertainties of potential competition' is just one of the forms of uncertainty identified by Moss of which evidence will be found in the Potteries. (8). Thus, for the pottery industry, and many other British industries, the last quarter of the nineteenth century was a time of judgements and decisions that were both increasingly important and increasingly difficult. For access to perceptions and judgements about the competitive environment formed by those in the pottery industry we are largely reliant on the trade press. In the debates in the pages of the trade press there was at this time a conscious wrestling with the problems facing the industry, and the emergence at points of

something close to a collective, if not always coherent, voice. These debates echoed Casson's belief, central to his understanding of business culture, that subjectivity is not solely 'an individualistic phenomenon....But....can also be collective' (9). Thus, although the business culture of the Potteries is not the subject of this chapter we will begin to see here in more detail some of its workings.

3.1 Prices and Costs

The concept of crisis or depression forms a useful point of entry into an examination of the relationship between constraint, judgement and response. As Crouzet argues, the concept of the Great Depression 'remains valid as a contemporary interpretation of what was experienced', despite attacks on its 'significance and unity' in recent aggregate studies (10). Just as in Sheffield it is clear that businessmen and firms in Stoke-on-Trent 'perceived a growing economic crisis at the local level....during the 1880s' (11). For example, in June 1883 The Pottery Gazette proclaimed that 'The whole commercial world, "Home" and "Foreign", seems paralysed to the core....We are face to face with a crisis in potting history' (12). The strength of that feeling cannot easily be discounted, but what was the nature of this crisis? In order to explore this question the concept of the Great Depression, and in particular the range of indicators on which it has either fallen or stood, will be used here as a device to initiate examination of the constraints facing the industry in the late nineteenth century.

For Saul, one of the most effective critics of the Great Depression, important indicators include 'prices, interest rates, production, employment, investment, national income, wages, profits, foreign trade, the terms of trade', but he singles out prices and industrial production as having particular significance because, 'their trends were the most pronounced and have caused the most controversy' (13). For prices he admits that there is an 'unmistakable' downward trend for the fourteen years from 1873 (14). The pottery industry did not escape this downward pressure on prices. Complaints that the industry had been made unrenumerative through the depression of prices were heard consistently throughout this period. In December 1881 prices were said to be 'unsettled' (15). One year later a review of the previous twelve months concluded that although a 'slight improvement' had been shown, 'the difficulty has been, not so much to secure orders, as to obtain fairly remunerative prices' (16). By late 1883 the situation appeared far more

grave, 'prices are simply ruinous. Competition is stalking through the land, leaving a bankrupts trail behind' (17). As late as July 1898, though signs of a revival had been detected, editorial comment in The Pottery Gazette still asserted that 'It has been no secret that manufacturers selling prices of pottery, particularly earthenware, have for a long time been disastrously low....That something must be done in the direction of improving prices is absolutely necessary' (18). Then, as now, much attention was paid to the links between downward pressure on prices and the highly competitive structure of the industry.

How accurate were the complaints of depressed prices so commonly heard in the late nineteenth century?. It is clear that from the mid to late 1870s both the unadjusted and the real value of British ceramic exports were subject to both greater instability than previously and periods of absolute decline. The third quarter of the century had witnessed steady growth in the unadjusted value of ceramic exports. By the 1890s, the 1870s were viewed as halcyon days for the trade and in reply to Royal Commission of 1886 the North Staffordshire Chamber of Commerce declared that in the years 1870-5 the ceramic industry had enjoyed above 'normal' levels of trade. As Church has noted there prevailed in the 1870s a 'generally optimistic climate of opinion, especially among the business community' (19).

In the 1880s and 1890s, however, both the volume of trade and prices displayed a far greater degree of instability, an effect linked in part to the imposition of tariffs in the important North American market. This instability was certainly of a magnitude likely to induce uncertainty in manufacturers. The bedrock of the Potteries' export trade did not now seem so secure. The unadjusted value of ceramic exports reached two peaks in these decades, in 1882 and 1889, separated by a trough in 1885. After 1889 exports by value again fell markedly before assuming a pattern of smaller and more frequent peaks and troughs that persisted for the remainder of the century. These figures are presented in Table 3:1.

TABLE 3:1 BRITISH CERAMIC EXPORTS BY VALUE, 1878-1900

Year	Value £	Year	Value £
1878	1,695,632	1891	1,956,776
1879	1,741,628	1892	1,899,859
1880	1,970,455	1893	1,824,181
1881	2,101,298	1894	1,607,740
1882	2,205,806	1895	1,839,941
1883	2,194,420	1896	1,799,133
1884	1,835,924	1897	1,726,245
1885	1,729,192	1898	1,650,654
1886	1,802,061	1899	1,862,851
1887	1,894,285	1900	1,645,400
1888	1,994,048		
1889	2,092,236		
1890	2,047,040		

Source: The Pottery Gazette, 1878-1900.

The industry was kept well informed of these movements, monthly Board of trade figures being published in the trade press with a delay of just two months, always accompanied by the figure for the same month in the two preceding years in order to facilitate comparison.

The declared real value of British ceramic exports, adjusted for price, displayed a similar pattern of peaks and troughs, high points being reached in 1883 and 1890. However, more importantly, comparing the unadjusted and real value of exports gives a rough guide to the movement of prices. The two sets of data are plotted together in Appendix B, Figure 1. As can be seen prices had begun to fall in the late 1870s before recovering and advancing between 1879 and 1883. A period of either falls or stagnation then set in between 1883 and 1887 before the slight recovery of 1888, heralding the rapid advance seen in 1889. However, this check to falling prices was short lived and for the remainder of the century consistent, if unspectacular falls were relieved by only very modest recoveries in 1894, 1896, and 1900. Contemporaries were then broadly right to claim that ‘the great depression has been in value more than quantity’ (20).

The depression in prices was seen by manufacturers as having a number of implications. For example, a manufacturer, writing anonymously on ‘The Condition of the Potting Trade’ in March 1888, believed that ‘there is little or no profit left...notwithstanding the

cheapened modes of production', suggesting that such were the falls in prices being experienced that they were outrunning any reductions also being made in the industry's cost constraints. The previous year it had been argued in the trade press that

bit by bit capital is being swallowed up, and shortly the holders of factories will find that the money invested in their business is returning little or no interest for the amount of care and anxiety that naturally follows a manufacturer's life. (22)

By the close of the century it seemed almost to have been accepted that 'competition is certain to keep profits down to the lowest possible point' (23). Given the typically informal and localized sources of working and fixed capital investment, and the central role played in all forms of financing by retained profits, the prolonged downward pressure placed on profits by falling prices held serious implications for the pottery industry. The first of these problems, maintaining liquidity, was perhaps the most immediately pressing and certainly accounted for a number of failures in this period. Indeed, as will be shown in chapter 5, even a very large and long-established firm such as Mintons could nearly be brought to its knees by the want of working capital. The effect of this sustained period of low prices and profits on long-term fixed capital is less clear however, for, as will be demonstrated in chapter 4, the 1880s and 1890s saw mechanization gather pace throughout the industry. Though quantitative measurement is fraught with difficulties, it would be reasonable to speculate that the industry had not previously seen a comparable wave of investment. Thus, it was observed in 1888 that 'the puzzle that occupies most minds here (is) the fact that despite bad trade and adverse reports from all sides, factories continue to be built' (24). Not only was this wave of investment likely to further reduce prices through increasing output but was also one source of a growing tension within the industry between quality and quantity.

Given the general economic conditions within the industry and the national economy such investment may appear anomalous in theoretical terms. Moss, for example, argues that 'price competition engenders a degree of uncertainty, which other forms of competition do not' and that the proposition that 'uncertainty (leads) to inaction is a fruitful hypothesis in that it enables us to explainobserved investment behaviour' (25). Thus, he concludes that

In conditions of widespread and unlimited price competition, and the attendant uncertainty about the reactions of other firms producing the same outputs, it would be difficult to assess the outcome of any investment in production....capacityreducing the desire to undertake investments. (26)

Clearly, though conditions in the pottery industry at this time were such as to induce uncertainty and inaction according to Moss, other factors militating against these effects were also present. Firstly, it is probable that although price competition is 'likely to reduce the availability of any external finance which might be required' for investment programmes, the trust-based finance networks prevalent in the Potteries proved both more robust and more flexible under such conditions. Moreover, much investment in productive capacity in the industry occurred in an ad-hoc and piecemeal fashion, necessitating only a steady stream of modest finance. Secondly, the price competition and attendant uncertainty experienced by the industry was not undifferentiated. Goodwill and market segmentation served to reduce the impact of price competition on, if not all firms, then at least on some. Finally, the industry, both domestic and foreign, contained many potential competitors, and whilst it may be true that the 'best defence against the uncertainties of price competition is inaction, the best defence against the uncertainties of potential competition is....investment in plant and equipment embodying current best-practice' in order to attempt to raise barriers to entry (27).

The pattern of structural development reconstructed in chapter 2 would suggest that the productive investments undertaken in the 1880s and 1890s did not immediately have the effect of deterring potential competitors from entering the industry. Indeed the trade press seemed to view all productive investment, whether undertaken by small entrants or large, established firms, as likely to only worsen price competition (28). Nonetheless, those firms making significant investments in this period were often those to survive and prosper in the twentieth century. Furthermore, the wave of investment that occurred in the pottery industry during the so-called Great Depression speaks well of the vigour and commitment of the industry's owners and managers and against an inherent lack of dynamism in proprietary capitalism in general.

However, if some manufacturers did not take as given the constraint on investment imposed by price competition and uncertainty then the downward trend in prices also held other strategic and structural implications. In the short-term great pressure was

placed on pricing policy, exacerbated by the absence of effective cost accounting in most firms. The lowness of prices was also seen as a form of vicious circle, desperation inducing manufacturers to accept orders on terms that only further weakened their position. During the wage arbitration of 1879 it was claimed that

There are, were the secrets of some offices known, not a few firms of fair standing and promise, who would have been paying as well if doing only half the trade; and some would have saved money if they had turned less over, for “cheap lines” have kept the men employed, while the wear and tear of machinery have had to come from somewhere, certainly not from the revenue of trade where it sold come from. It is as many say-an unrenumerative trade is not worth doing. (29)

Continued downward pressure on prices would, in the medium and long-term, eventually come to induce moves away from both batch production and the industry’s small-scale structure. In the late nineteenth century, however, these were as yet only dimly perceived possibilities. In the meantime, as Mr. Pinder of Messrs Pinder, Bourne and Co. stated in 1879, ‘Things were going from bad to worse....and business was being carried on at a loss’, the firm was only kept going by ‘sinking fresh capital’ (30). Not surprisingly, a further effect of depression was to induce expressions of nostalgia, and in 1899 one potter looked back to the 1870s as

the golden age of potting-the days when customers came to us for pots, and thought themselves fortunate if they could get what they wanted without being too particular about the price. But those halcyon days are gone, never to return. (31)

If profits and capital were being squeezed from one side by low prices then manufacturers also felt constrained in the other direction by the cost-structure of the industry, and in particular by the contribution of wages to costs. Attempts to circumvent this constraint, whether through wage reductions or by alterations to the resource mix of the firm, were of limited effectiveness in this period. Given that levels of prices and wages were closely linked in the minds of many in the industry, who felt that movement in one index, particularly a rise in wages, would necessitate a corresponding movement in the other, it is hardly surprising that considerable attention was paid in the last quarter of the century to reducing wages in the industry. Since prices were falling, or at best unsettled, throughout this period union pressure to raise wages was fiercely resisted. The

wage arbitration of 1879 again affords an opportunity to explore this issue. Indeed it has been suggested that this arbitration 'introduced the rise and fall of selling prices as a major determinant of wages' (32).

As a precursor to the negotiations of 1879, The Pottery Gazette asserted that opinion 'generally urged that a reduction was necessary to permit of business being done in a more satisfactory way at the present selling prices'. It was believed that the effect of the reduction being sought by the manufacturers 'would be to relieve the employer by enabling him to produce his goods at less cost' (33). Equally clearly it was also believed by manufacturers that they were able to wield greater influence over the movement of wages than of prices. The arbitration was triggered in September 1879 by the manufacturers giving notice of a 10% reduction from Martinmas. The case for a reduction was presented to the Board under five headings, at the heart of which lay claims of increased foreign competition and falling prices (34). It cannot be doubted that external competition was beginning to be felt with some force and the debates surrounding the arbitration made a lasting contribution to thinking within the industry on the nature of and possible response to both competitive and cost constraints.

Evidence presented by the manufacturers in 1879 indicates the steadily rising contribution of wages to total production costs during the 1870s. Mr. Pinder estimated that in 1873 wages had represented 30% of turnover, a proportion that had increased by one third by 1879. Mr. Hammersly, of Brownhills Pottery Co., traced a similar steady rise in wages as a proportion of total costs, from 31.4% in 1873 to 47.1% in 1879. Mr. Hammersly said the firm had experienced a 15-21% fall in selling prices in the same period, though it should be noted that the British economy had witnessed 'spectacular' price inflation between 1870 and 1873 (35). Indeed, the sharp price inflation of 1873, rather than any actual rise in wages, may also have accounted for the increased proportion of wages to turnover and total costs experienced by these firms between 1873 and 1879. Finally, E.J. Ridgway, of Ridgway, Sparks, and Ridgway, calculated wages and materials as a combined proportion of turnover, rising from 68.25% in 1876 to 76.25% in 1879. Ridgway also chose, when giving evidence as to price movements, to base his comparisons on levels in 1873, claiming that selling prices had fallen by 20.25% since that year (36). On the basis of this and further submissions the award went with the

manufacturers and the umpire, Lord Hatherton, imposed a reduction of one penny in the shilling, explaining his decision thus

(trade) is depressed to such an extent as to require some reduction in the total cost of production, and that it was proved to me that there was no way of obtaining this result by more economical management or by obtaining raw materials at less cost than at present, nor was it possible to increase the selling price while the trade (whether American, home or foreign) was in its present state. I deeply regret that my award must be against the workmen. (37)

Clearly the arguments of the manufacturers had carried considerable weight and reversing Hatherton's decision preoccupied the unions throughout the 1880s. However, if changing competitive constraints had begun to focus manufacturers' minds on their costs, and on wages in particular, then they also highlighted in a way not seen before the weakness of their relationship with the institutions of distribution and exchange. Indeed, it became part of union strategy, in pursuit of the restoration of 'Hatherton's penny', to argue that the manufacturers had been weakened in their relationship with buyers and dealers by the award and that further falls in selling prices had been the principal result.

Certainly the retail trade had little sympathy with the complaints of the manufacturers, one dealer claiming in reaction to the arbitration that he was paying '20 to 50% more for earthenware than in 1870 and yet (manufacturers) do not seem by their evidence to realise the difference in profit....the gist lies in the management of their concerns and their own personal and business expenditure' (38). The small-scale structure of an industry producing for very numerous and widely distributed final customers and a long-established, non-integrated distribution network had created a powerful role for buyers and dealers. This was an institutional constraint effectively taken as given by the manufacturers of North Staffordshire. Buyers bringing orders to the district were able to play one manufacturer off against another in the search for the lowest price. In effect the structure of the industry 'allowed the invisible hand of market forces', represented by the dealer, 'to dictate prices, wages and profits' (39). As the nostalgic view of the 1870s quoted above suggested dealers had not always enjoyed such a position. However, as in the Philadelphia textile trades, a 'general increase in productive capacity since 1880 had created a buyer's market....in which price was becoming steadily more significant' (40).

Furthermore, much of this additional capacity was in the hands of small, new firms, financially insecure and with little power to resist the 'cutting' ready-money buyer.

Thus, in the 1880s and 1890s intermediaries were able to play an important role in the price:wage equation, further inducing manufacturers to examine the cost-structure of their operations. The wage reduction of 1879 and its vigorous defence throughout the 1880s and 1890s, including unified action against strikes in 1891 and a lockout in 1892, was however essentially a defensive reaction to falling prices, to which the industry was compelled by an inability to act over prices. Such a response did little to significantly alter cost constraints. Further attempts to reduce costs through mechanization will be examined in the next chapter, whilst institutional and cultural barriers to collective action to raise prices will be explored in chapter 8.

These problems may be traced primarily to the industry's atomistic, small-scale structure and similar situations can be found elsewhere. Scranton, drawing his conclusions from studies of the Philadelphia textile trades, American jewellery industry, and other trades, has noted of batch specialists in general that 'The premium they expected as price setters was, however, less often realized than anticipated...influence over price was situational, shifting erratically from seller to buyer and back', a claim reinforced by the example of the Potteries in this period (41). Just as in the Potteries, 'The jewellery industry's problematic link to final demand first became evident during the hard times of the 1870s....a great volume of the business was done under terms of trade and at prices that reduced or erased manufacturers' returns' (42).

However, the dealer was aided in gaining this influence not only by the structure of the industry but also by the attitudes of the manufacturers, by their individualism and faith in laissez-faire political economy. In particular, manufacturers in the Potteries appeared to believe that wages were the only factor in the price:cost equation over which they had any influence, an example perhaps of Cassons's concept of collective subjectivity. Thus, when wage increases were demanded in the autumn of 1881 it was argued that 'A rise in wages means a rise in the price of the manufactured article, a rise in that particular point means a closing up of our present improvement' (43). In repeatedly seeking the rather blunt instrument of wage reductions and in allowing the productivity gains of mechanization to be lost through compromise, as will be shown in the next chapter,

manufacturers in the Potteries displayed 'inherited attitudes moulded by the cost-conditions of the past' (44). The arbitrations of the 1870s and 1880s, initiated by manufacturers in search of immediate relief through lower wages, inhibited a more fundamental restructuring of the industry's costs. Moreover, a desire to reduce the contribution of wages to costs in the industry was offset by a cultural commitment to skill in general and to specific groups of skilled workers. Nonetheless, the relationship between prices and wages remained at the forefront of manufacturers' concerns for the rest of the century. Thus, it was noted in February 1896 that the 'main topics...which are now being discussed in Staffordshire are selling prices and wages' (45).

A preoccupation with wages as competitive constraint was reinforced by the interest shown in the wages paid in competing foreign ceramic industries. As might be expected wages were higher in the United States than in England, by as much as 30% according to an estimate of 1883, though it was also noted that 'the prices of (US) ware are very low in relation to the cost of labour'. The difference between English and American wages was reckoned to be of the order of 20% by Wendell C. Warner, the American consul to Tunstall, in 1894. In contrast the wages paid by Continental manufacturers were known to be considerably lower and this was widely seen to be disadvantageous to Stoke (46).

The other principal components of the industry's cost-structure were materials and transportation, neither of which seems to have represented as severe a constraint as wages. Evidence presented at the arbitration of 1879 suggests that the prices of most materials were falling, in line with national trends. It has already been shown that for Ridgway, Sparks and Ridgway wages and materials combined grew as a proportion of turnover between 1876 and 1878 but a more detailed breakdown demonstrates that this rise was due almost entirely to rising wages. In the same period the cost of clay had fallen by 0.5%, coal by 0.75% and cobalt and other chemicals by 0.25%. Only straw, used in the packing of wares before shipment, had shown a rise in price (47). Similarly Mr Hammersly of the Brownhills Pottery Co., estimated that in 1879 materials represented 24% of the cost of production as against 30 % in 1873, though whether that decline was due to an absolute drop in the cost of materials or was relative to increases in other inputs, such as wages is unclear (48).

However the imminence of a dispute over wages in the earthenware trade in early 1892 prompted manufacturers to claim that the price of many materials were now rising and wage increases simply could not be afforded. Mr Robert Young, of the very large Hanley firm J. and G. Meakin, in order to substantiate such a claim, presented evidence that looked all the way back to 1879. Lord Hatherton's decisive ruling of that year had clearly come to be seen as a benchmark judgement on the mechanisms linking cost and prices, giving precedence to subsequent claims by manufacturers that in wage and material costs they faced a double constraint. Young claimed significant rises in the cost of all principal materials across the period 1879 to 1892; coal and slack, the single greatest material expense for all manufacturers, was up by 30%, slop, flint and stone by 12.5%, marl by 28%, bricks by 10%, clays of all descriptions by 10% and white lead by 5% (49).

Such claims are however open to dispute, and were dependent upon the frame of reference adopted by Young and others. Church's index of pithead coal price estimates shows that 1879 was significant to manufacturers not only because of their landmark victory in arbitration but also because coal was cheaper then than in 1892. Where 1900 = 100 coal prices stood at 50.8 in 1879 and at 66.9 in 1892. However, Church's estimates suggest that coal prices had been significantly higher in the two years prior to 1892, when Young argued his case, and were to continue to fall in each of the subsequent four years. The comparison with 1879 was clearly carefully chosen (see Appendix B, Table 2: for the Index of pithead coal price estimate, Table 3: for comparative regional pithead prices, and Table 4: for details of output in the Staffordshire coalfields). However, Church also notes that after the 1870s coal prices tended to 'increase relative to general prices' and may thus, as evidence from Mintons also suggests, have represented a greater expense on the value of the final product (50). Moreover, as Church observes, 'the increasing heterogeneity of coal for sale from the 1870s...destroys the notion of a single price for coal', the market displaying regional and quality segmentation (51). Output figures presented by Mitchell and Dean suggest that output in the Staffordshire fields, including South Staffordshire and Worcestershire, was stagnant relative to national trends in this period, when, due to the growth of both the pottery and iron and steel industries, demand must have been growing in North Staffordshire, and this pattern may have had some impact on local prices

Evidence from Mintons allows the balance between different input costs to be explored in more detail. The firm's expenditure on materials in and on ware (that is clay, bone, flint and other minerals both in the ceramic body and in glazes and paints) increased by £846, or 2.3% on the value of the ware made, between 1877 and 1878 but during the 1880s this trend was decisively reversed, even at a firm which had considerable difficulty in controlling costs. Indeed even this increase may probably be attributed more to poor control than actual price rises, for in 1879 the firm's accounts commented that 'nearly every article consumed is costing less than in 1876-7'. A memorandum prepared in 1890 to compare the performance of the firm in that year and in 1884 found that in the period in question expenditure on materials in and on ware had fallen by £5,528, or 1 2% on the value of the ware made. Only coal, in line with Church's estimates, had increased significantly in cost, both in absolute terms and relative to output (up £1393 or 2.7%) (52). The examination of Jesse Shirley and Son in chapter 7 will show that prices for bone, an important commodity in the pottery industry were also falling in the 1880s and 1890s. In concluding this examination of material costs reference should perhaps be made to a note in the trade press of 1898 observing that 'Coal also, in spite of rumours of difficulty, shows if anything a downward tendency, and, upon the whole, manufacturers are now obtaining materials more cheaply perhaps than at any time in the past half century' (53).

Nonetheless, it is clear that the industry was subject to a degree of cost constraint at this time and that even when both wages and the price of the materials showed general downward trends these falls were insufficient to offset those in the prices of finished goods, leading to a squeeze on profits. Moreover the ability of firms to exert control over these movements, despite victory in successive arbitrations, was limited by structural, institutional and cultural constraints. Evidence of further attempts to overcome these constraints, by integrating backwards into coal supply for example, is limited.

As has already been suggested coal was central to the process and the cost of making pottery. In late 1899, for example, Longton china manufacturers announced price increases in response to rising costs, particularly for coal, 'which in the last six months has risen 20%. Now few persons outside a pot works know how large a proportion of the cost of the commoner grades of earthenware and china lies in the coal' (54). From

the very early nineteenth century a few large potters, most notably Josiah Spode II and William Adams, had either invested in or owned local collieries but from the mid-century onwards most involvement in mining or other trades alongside pottery manufacture appears to have been designed to ensure a diversity of family investments and income rather than to obtain more secure and cheaper supplies of coal. Thus, when William Adams, an early proponent of diversification into mining, died in 1865 his Greenfield Pottery Works went to his eldest son William and the mines to another son, Thomas. Similarly, shortly after William Brownfield, who owned both pottery manufactories and potter's mills, died in 1876 his business was divided between his sons, Edward having sole control of the pottery and Douglas of the mill. These patterns of diversification along clearly separated lines of ownership and control within a family mirror, though on a smaller scale, those found by Rose in the Greg family in Cheshire and Lancashire and by Scranton amongst the Bromleys of Philadelphia (55). Yet others, such as William Woodall of James Macintyre and Co., held directorships of local collieries, as well as in utilities such as gas and water works, but again these interests seem to have been largely rentier and did not signal the integration of mining and pottery manufacture (56). It seems likely that the North Staffordshire mining industry was too competitive in structure to make backward integration attractive or necessary for most pottery firms.

As in Sheffield, where some integration backwards into mining also occurred, a further response by manufacturers to the 'question of high coal prices was developments in coal saving techniques and new forms of fuel energy such as gas and electricity', responses which will be examined in the next chapter (57)

The industry was also susceptible to fluctuations in the cost of transporting both bulky raw materials and delicate finished goods. Indeed transport costs were singled out as a special circumstance 'affecting your district to which the existing condition of the trade and industry can be attributed' in the response of the North Staffordshire Chamber of Commerce to the enquiries of the 1886 Royal Commission. The Chamber stated firmly that 'From our inland position we are at a disadvantage by reason of high rates of railway and canal carriage, both for raw materials and delivery to ships' (58). However, coal, required by the industry in greater volume than any other material and also the most costly to transport, was to be found in abundance in very close proximity to the manufactories of the district. In June 1886 the report of Consul Schoenhof, another of

the energetic and inquisitive American consuls based in Tunstall, found that 78.5% by volume of the materials required by a typical three oven potbank were sourced in the immediate neighbourhood (59). Caution is required then not to overstate the impact of any rise in the cost of transportation to and from the district.

3.2 Competition.

Overarching all questions of prices, profits, wages and other costs, and providing the context in which those issues took on an added urgency, was competition; both domestic and foreign, real and threatened. The reply of the Chamber of Commerce to the 1886 Royal Commission identified ‘increased competition, especially with foreign manufacturers’ as one of the ‘most prominent symptoms of the depression of trade and industry (60). Concern over rising foreign competition was first expressed in the 1870s and continued unabated up to the close of the century.

Foreign competition was central to the arguments deployed by manufacturers in the arbitration of 1879, William Edge, of Edge, Malkin and Co., concluding that ‘The men seemed to think that foreign competition was a myth, he regretted to say that that was not the case’ (61). In 1881 foreign competition was ‘the old enemy’ (62), and by 1889 ‘the severe competition to which our trade and industry has been subjected from the action of the leading Continental nations, France and Germany more particularly’ was an established fact of life (63). In the final years of the century it became ‘impossible to resist the conclusion that Germany and other countries are surpassing us in power of production...The superior position in the industrial markets of the world long held by this country is now....undermined’ (64). This was a new experience for the pottery industry of North Staffordshire. The changes in the organization of both production and marketing begun by a few manufacturers in the eighteenth century had won for the industry a dominant position in home and foreign markets in the nineteenth century, the most valuable of which was the United States, thought in the 1890s to be worth over three times more than the next most valuable market. (See Appendix B, Table 5: for details of the composition of ceramic exports through Liverpool in 1850, and Table 6: for the comparative value of principal export markets in 1877-9). Moreover, names such as Sevres and Meissen might have retained their cachet but were now matched by Minton and others, whilst in the mass market Stoke matched in pottery the global pre-

eminence of Lancashire in cotton. It was that pre-eminence, and with it the district's prosperity, reputation, and status, that was threatened by foreign competition. What was the nature of this competition, what form did it take, and was there any uniformity to its impact on the industry?

The replies of the Chamber of Commerce to the enquiries of the 1886 Royal Commission are again useful in beginning to address these questions. The 'principal competitors in pottery' were identified as 'Germany, France and Holland....for their home consumption and for export, and....the United States for the supply of its own market' (65). There thus arose in the last quarter of the nineteenth century two constellations of firms competing with those in the Potteries. The industries of continental Europe sought, primarily through price, to gain control of their own domestic markets, annex parts of the English export market, and even to make some inroads into the British domestic market. The American industry was content largely to claim its own huge domestic market and was not to become a serious exporter, either to Britain or elsewhere. However, such was the existing and potential size of the American market that this was probably the gravest challenge faced by North Staffordshire. The central role of export markets was clearly recognised by the industry, for, as the trade press noted in 1892, 'As an insular and manufacturing nation we feel the fall in exports to be one of vital importance. Our continued existence as a manufacturing and producing power rests largely upon our export trade' (66). Pollard's conclusion that manufactured exports are 'possibly the key variable in the discussion of the failures of the British economy....what was significant for Britain was her position as an exporter in a competitive environment' had already been reached in the nineteenth century (67).

Some further general characteristics of the changing competitive environment may now be introduced. Firstly, foreign competition did not necessarily mean a contraction in the size of the market share held by English firms as many export markets continued to expand. As has already been noted competition tended instead to lead to reduced selling prices. Undoubtedly though, given its more limited potential for growth, any incursion by foreign manufacturers into the UK home market must have been at the expense of domestic firms. However, given the different forms of competition offered by Continental and American producers, and that many firms in the Potteries specialized either in home or specific export markets, the effects of competition were rarely felt

evenly throughout the district. It was not uncommon to find one section of the trade depressed whilst another was buoyant. Trade reports were often 'of a strangely contradictory character' with some firms working flat out whilst others stood idle (68). This unevenness was ever changing in its composition but touched all firms; home or export, china or earthenware, large or small, from Tunstall to Longton, at some point or another. It may have been that in September 1879 whilst 'The general depression of trade continues to be felt by the potters....some of the large firms have scarcely' suffered at all', but, in contrast, 1885 was felt to be 'memorable in at least one respect. Whilst some of the very best houses have been phenomenally slack, the small producers from one end of the Potteries to the other, have been able to keep their ovens going regularly, their only difficulty being to fulfil orders. Cheapness is the order of the day' (69). Such volatility in the markets could lead to the re-orientation of a firm's market focus. Thus, in 1879 Wedgwoods noted that their former market structure of two thirds foreign and one third domestic had become exactly reversed (70).

There is then a clear need for attention to be paid to the industry's demand structure, for, as Wilson argues in support of Saul, 'rather than the pace of market growth, of much greater significance to (the) debate about the propensity of British manufacturers to invest in capital-intensive technologies was the nature and structure of demand' (71). Furthermore, Wilson claims that in ignoring the 'market-cum-technological environment' in which British firms operated Elbaum and Lazonick 'fail to provide the context' in which institutional rigidities persisted (72). Did its established demand-structure represent a constraint on the further growth and development of the North Staffordshire pottery industry in the late nineteenth century? This question must be addressed at the level both of the whole industry and of the individual firm.

Wilson places much emphasis on the role of the domestic market, its 'size, affluence, rate of growth, level of competitiveness and organisation' providing the 'vital context in which businessmen operate' (73). Certainly the domestic market, now generally recognised as suffering from retardation from the 1860s, was important to the Potteries. Though the export trade in pottery was carefully monitored by the Board of Trade, the industry had very little knowledge of even the size of the domestic market, but it was felt to be at least equal in value to all export markets, in line with national trends. The United Kingdom Census of Production of 1907 found that goods 'representing rather more than

one third of the value of china and earthenware goods produced in the UK were exported' (74). Clearly the overall balance between domestic consumption and exports in the demand structure of the pottery industry is of significance if the sluggish growth of the domestic market is accepted. In this context the apparent trend towards greater dependence on domestic markets revealed by the census of 1907 cannot be ignored. However, some qualifications must be introduced. Most importantly, though the pottery industry was by the late nineteenth century relatively old, a clear part of the first industrial revolution, the composition of its demand was quite different to that of other old, staple industries. As a consumer good, increasingly marketed via branding, much pottery was situated in one of the most dynamic sectors of the British economy in this period, buoyed up by the increase in real wages seen in the great depression era. This buoyancy is clearly attested to by the aggressive interest shown in British domestic markets for ceramics by European producers investing more heavily in productive technologies (75).

Shifts in the demand structure of the pottery industry and in the balance in trade in ceramics will now be discussed in more detail; and just as care must be taken not to over-estimate the constraint placed on the industry by the size and growth of the domestic market so must criticisms of the industry's export performance be tempered. In July 1898 The Pottery Gazette carried an article entitled 'Our Export Pottery trade', which demonstrated that 'In two ways the Pottery record for the past five years is unsatisfactory -first the exports of British ware have declined, and second the imports of foreign ware have increased' (76). Included were tables showing the value of exports and imports for the five years 1883 to 1887, and 1893 to 1897, with the overall balance in trade for each period calculated. These figures are presented in Table 3:2.

Clearly these were adverse shifts, the balance of trade, whilst still in Britain's favour, had narrowed by 24%. If just 1887 and 1897 are compared it can be seen that the gap had been closed by some 40%. It is also clear that these changes were caused not by a collapse of British exports but by dramatic import penetration of the domestic market, the stagnant value of imports in the mid-1880s being replaced by strong and steady growth in the mid 1890's. Thus, whilst British exports declined by only 7.3% between 1883-7 and 1893-7 imports rose by 35% in the same period. Two preliminary conclusions may be drawn from these figures; firstly, as has already been suggested, the

domestic market was far from drained of potential at this time, a proportion of which was captured by foreign competitors, and, secondly, that the export performance of the industry must not be too hastily condemned. It must of course also be remembered that in this period the industry faced ever higher tariff barriers in a number of important export markets (77).

TABLE 3.2: THE BALANCE IN TRADE IN CERAMICS, 1883-7 & 1893-7.

Year	Imports £	Exports £	Year	Imports £	Exports £
1883	603,410	2,198,417	1893	625,532	1,821,468
1884	550,600	1,835,316	1894	619,572	1,607,845
1885	518,496	1,729,192	1895	686,575	1,839,318
1886	521,418	1,802,789	1896	844,749	1,778,735
1887	537,626	1,894,745	1897	904,788	1,725,613
Total	2,731,550	9,460,460		3,681,216	8,772,979
Balance	6,728,910			5,091,736	

Source: The Pottery Gazette, July, 1898, p.849.

The picture then is mixed. Though its position had suffered some erosion the British pottery industry, based almost wholly in North Staffordshire, had maintained its position as a considerable net exporter of ceramics. The pottery industry was not alone in witnessing conspicuous but not catastrophic shifts in the balance of trade in the late nineteenth century. The iron and steel trades underwent a similar experience in the 1890s, but for Pollard this does not rule out the possibility that ‘Britain was merely being caught up from an unsustainable lead’ (78). The impression that the ceramic industry did not undergo a crisis in the late nineteenth century is reinforced if the analysis of the balance of trade is extended. The Census of Production of 1907 shows that the balance of trade in ceramics in that year stood at £1,768,400, in comparison with £1,357,119 in 1887 and £820,825 in 1897. The figure for 1907 represented an advance of 30% on 1887 and of 115% on 1897. As export figures for 1907 stood at £2,649,000 and imports

at £880,600 it is clear that this reversal of the trend seen in the previous twenty years was due almost entirely to a boom in exports, a part of the wider Edwardian export boom, and not to any reversal of the penetration of the domestic market made by foreign competitors. Nonetheless, assuming continuing if limited growth in the domestic market the figures do suggest that the steady rise in imports seen in the 1890s had at least been halted by 1907 (79).

However, if export and import figures are disaggregated country by country rather more complex structural shifts, carrying with them unmistakable long term implications, can be detected. Most telling was the failure of the industry to maintain its grasp on the vital American market in the 1890s. Details of exports to and imports from the United States, Germany, and Holland for the decade 1890-1900 are presented in Appendix B, Figures 2:, 3:, and 4:.

Much of the blame for the clear and steady falling off in exports to the United States must lie with the effects of tariffs, the American pottery industry being 'unusually well protected by tariff legislation' (80). However, though replacement of the particularly stringent McKinley Tariff with the Wilson Tariff pushed British exports to a decade high in 1895 the recovery was short-lived and could not be maintained. No doubt behind the tariff barrier the US industry was keenly pursuing import substitution, beginning at the bottom end of the market, and the decline in British exports continued after the turn of the century, standing at only £498,398 in 1902. The net effect was, as an American observer noted in the 1930s, to exclude all but the finest English wares, 'the bulk of our imported pottery should be classified as porcelain. Only earthenware of high artistry and long established reputation continues to come into the country, although at one time, in the latter part of the nineteenth century, England sent large quantities of earthenware to America' (81).

The trade with Germany, the leading continental competitor, and Holland presents a more complex picture. Throughout the 1890s Britain was a net importer of both German and Dutch ceramics. Both exports to and imports from Germany tended to increase in value down to 1900. Nonetheless the growth in German imports, starting from a higher level, was still enough to continue to widen the balance of trade between the two countries, from £172,004 in 1890 to £237,678 in 1900. The picture with Holland is much

the same, the Dutch advantage in the balance of trade in ceramic goods widening from £104,824 in 1890 to £157,758 in 1900.

Whilst not critical by the close of the nineteenth century these shifts were indicative of trends that were to become far more severe in the twentieth. Furthermore, in the light of these changing trading patterns in traditional markets it is significant that the industry was not able to achieve compensating gains in newer markets, particularly those of the Colonies and Empire. The trade with Australia at times grew by 10 % p.a. in the 1890s and the Australians were regarded as 'the best customers we have, and every means should be taken to keep their custom. While the United States spends annually about two pence per head on British crockery, the Australian spends fifteen pence', but the population was too small to offset losses in a market such as the United States (82). Conversely, a country such as India was very populous but also very poor and the annual values of British ceramic exports to India in the 1890s did not represent any real advance on those of the 1870s. In fact the value of exports to India fell, from a high of £101,000 in 1891 to a low of £60,000 in 1897 (83). As the end of the century approached it was acknowledged that we do vastly less trade without great dependency than we ought to' (84). Attempts to exploit Imperial markets will be returned to in chapter 6.

Thus whilst it is clear that the export performance of the industry was faltering at this time it cannot be said that the so-called hard markets had been abandoned. It is also clear that the threat of foreign competition was taken very seriously in the Potteries and provoked much debate. Issues of interest included the true extent of that threat, its basis, and the steps that might be taken to counter the challenge. There was also felt to be an underlying problem in the balance of supply and demand, but there was disagreement as to whether this problem was rooted in over-production or under-consumption. It was recognised that the answer to this last question, on which ever side it fell, would have implications both for the strategies adopted by individual firms and for the structure of the industry as a whole. It was recognised that there was need for a clearer determination of the relationship between short-term trade cycles and the continued expansion of the productive capacity of the industry through both new entrants and re-equipping.

Whether implicitly or explicitly these debates tended to focus on the business structure of the industry, and towards the close of the century some, particularly in the trade press

and the largest firms, advanced the belief that either market forces would induce a restructuring of the industry, eliminating the proliferation of small scale units, or that such a restructuring must be deliberately sought, possibly through merger (85). The small-scale business structure of the district, and the business culture of personal capitalism to which it was tied, was coming to be seen as a constraint in the context of increased foreign competition. Structure and culture were, however, to prove effective barriers to any attempts to remove such constraints, as will be shown in the history of a body such as the North Staffordshire Exchange, examined in chapter 8. Thus, as Lewis has noted of the Sheffield iron and steel trades at this time, also experiencing stagnating exports, rising imports and low prices,

Although aware of the constraints facing them, 'British businessmen failed to confront institutional constraints innovatively', in particular the retention of small scale business structures in a political economy of free trade which protected faster growing foreign markets. (86)

As in Philadelphia 'industrial structure set limits on the organization of manufacturers' interests', there was a failure 'even in crisis to bridge the conflict between the goals of separate capitals and the collective consequences of individual action', amongst which Scranton includes excess capacity and over-production (87).

It has been shown that the main threat was identified as coming from the leading continental nations, Germany, France and Holland, and from the United States. The success of these countries was seen to lie in a combination of factors including low wages (on the continent), advanced production techniques, 'superior technical education' and the protectionist policies of competing countries (88). Whilst tariffs had their origin in the political economies of competing countries other foreign advantages, particularly those of scale and technology, were explained by a model which linked the structure and strategies of an industry to the nature of its origins and subsequent growth and development. Thus, a clear difference in the type of man in business in the Potteries, his likely business behaviour and the type of firm he controlled, was being pointed up when it was claimed that

Another point is that German makers are mostly wealthy men to commence with, who adopt every mechanical means for cheapening the cost of production - steam batters, jollies, patents of every description that money can buy or skill devise, are bought into requisition to keep the trade in their own country. (89).

The difference in national technologies being pinpointed, vital in allowing German manufacturers to reduce cost, was seen as allied to differences of structure and culture which meant German units of production were larger and more heavily capitalised than those in Staffordshire. This relationship between structure, developmental pattern, and competitive position was stated even more explicitly when it was acknowledged that ‘Our prestige is fast evaporating before the encroachment of German and French houses’, and these competitors had ‘started from the point already reached by the Staffordshire makers and profiting by the experience gained by the latter are able at one bound to almost eclipse their opponents in cheap goods’ (90).

It was still not felt, however, that such strengths would outweigh those that had accrued in Staffordshire, and in particular would not enable continental industries to compete on the basis of quality, in which the Potteries placed so much faith. Indeed, much opinion remained remarkably sanguine during the last decades of the century. In 1879 it was felt that Trenton, the principal location of the US pottery industry, ‘would never compete with Staffordshire until it had attained the maturity of Staffordshire, and have become the seat of a corresponding investment of wealth’ (91), whilst as late as 1898 one commentator was asserting that:

The cry of German competition would have sufficed for an explanation (of depression) at one time, but it is not good enough now, German earthenware at least is not a very dangerous competitor in our own country, whatever it may.... be in some of the cheaper foreign markets. (92)

even as German imports were displaying the strong growth demonstrated here. Such attitudes cannot be considered anything but complacent.

Complacency also characterised many comments on the issue of an apparent imbalance in supply and demand. In the pages of the trade press the weight of opinion rested for a long time with an argument that denied the possibility of over-production and looked instead either to a hiatus in demand, despite the acknowledgement that the depression had been more in value than in volume, or a fault in the means of exchange (a possibility that will be considered here shortly). The home market, for example, was seen as being susceptible to stagnation induced by poor harvests and subsequent contractions in disposable income, though real wages were rising throughout the period. Interventions that opposed this general view of the supply and demand question could be heard but they were less common. However, the problem grew in urgency in the 1890s as an expected sustained revival in trade failed to materialise and contributions to the debate became more frequent in the middle of that decade. One, from 1893, recognised the enlarged capacity of the industry but still laid greater emphasis on the need for a 'greater extension of consumption' (93). Others were more strident in tone

There can be little doubt, however that the fault (for the depression) lies somewhere outside the domain of the producer. It cannot really be that there are being made more plates and dishes than the peoples of the world could use if only they could get them....there can be no real over production until everybody has that which he desires and is willing to give his labour in exchange for. As long as the Australian farmer or the Indian ryot is willing to grow fruit or corn in exchange for crockery....it is idle to talk of over production. If the exchange of the labour of the potter and the labour of the farmer cannot be effected there must be something wrong either with the medium of exchange, or with intermediaries between the two. (94).

Voices arguing that the principal causes of the depression 'were found to be an overflowing of the ordinary markets, consequent upon the improved conditions of manufacture, (and) the rapidity of production' were certainly less often heard than those complaining of 'a want of demand'. Still, by 1899 it could be argued that the 'fact that production has outrun consumption' was 'half recognised' (95).

This recognition then, as was suggested above, fed into a growing understanding of the way in which the industry had responded to the short-run cycles of which the longer

period of 'depression' had been composed. The atomistic structure of the industry had meant that whilst 'it is probable that there are sufficient pottery operatives, enough works and ample machinery and material to turn out 50% more crockery' as soon as

an exceptional and temporary demand arises new works are put in hand, new machinery laid down and foolish and unnecessary capital sunk, which hangs like an Old Man of the Sea round the neck of the trade when things return to their wanted level. (96).

Lewis has identified a similar process in the Sheffield iron and steel trades, where short and often unpredictable business cycles caused difficulty in the timing and co-ordination of productive investment (97). These problems, though impacting on the individual firm, were located in the enormously subdivided structure of the industry as a whole, a constraint which manufacturers could not confront alone and which the business culture of the district prevented them from confronting together.

There was, however, also some validity to the focus on the institutions of exchange noted above. Returning again to the industry's demand structure, this time at the level of the firm, and to the role of the dealer, previously implicated in driving prices down, it can be seen that firms in the Potteries operated in a market environment both unconducive to moves to greater throughput and very resistant to change. It has already been argued that the overall demand structure of the industry, and in particular the role of the domestic market, placed some constraint on the growth and development of the industry. That element of constraint was replicated in the nature of the orders brought to firms by the highly specialized, but non-integrated distribution network interposed between firms and their final customers. This problem persisted well into the twentieth century. An article of 1944, entitled 'Exports in 1945 and After', though still arguing that the 'functions of manufacturing and selling should be separate, though co-ordinated', recognised that after the war the industry would have to be 'ready to tackle the job of selling in bulk and manufacturing in bulk-for the two functions must be synchronised to be fully successful'. A barrier to achieving that aim though were 'those orders calling for a hundred different sets in a hundred different patterns' (98).

This, of course, is largely a matter for agents and travellers....and it needs to be emphasised that sales-

people are paid by, and therefore representatives of, the factory not buying agents for customers. No longer will it be sufficient for them to point to an impressive aggregate total of orders secured; the orders must be of a character such as will individually show a profit. (99).

Transaction costs were 'heavily skewed in favour of external dealings' and provided 'little incentive for British manufacturers to internalise marketing and distribution at a time when retardation characterised market conditions'. The organization of distribution and selling discouraged moves to a greater throughput and the realization of economies of scale by failing to guarantee sufficient sales, thus threatening under-utilization and higher costs (100).

The Potteries, with its many small to medium units, reputation for quality, reliance upon goodwill, and high cost constraints possessed a business structure that had evolved in the context of a now disappearing market configuration and competitive environment. That changing environment did, however, contain powerful forces likely to induce responses within the industry in North Staffordshire. Competitive forces focused the attention of management teams in existing firms on their physical and human resource mixes, whilst awareness of an apparently expanding, though devalued, market encouraged new entrants, tending to perpetuate the existing business structure and culture of the district. Having established the range of response-inducing constraints facing the industry in the late nineteenth century attention will now focus on such responses as were made. The next chapter will then examine resource responses, and in particular the issue of mechanization.

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4. Ibid., p.30.
5. Ibid., p.35.
6. Ibid., p.35.
7. Ibid., p.31.
8. Moss, 1981, p.95.
9. Casson, 1993, p.40.
10. Crouzet, F., The Victorian Economy, 1982, p.62.
11. Lewis, 1989, p.55.
12. The Pottery Gazette, June 1883, p.559.
13. Saul, S.B., The Myth of the Great Depression, 1982, p.9
14. Ibid., p.13.
15. The Pottery Gazette, December, 1881, p.1036.
16. The Pottery Gazette, December, 1882, p.1128.
17. The Pottery Gazette, August, 1883, p.955.
18. The Pottery Gazette, July, 1898, p.827.
19. Church, R. The Great Victorian Boom, 1850-1873, 1979, p.11.
20. The Pottery Gazette, January, 1886, p.40.
21. The Pottery Gazette, March, 1888, p.227.
22. The Pottery Gazette, February, 1887, p.177.
23. The Pottery Gazette, June, 1899, p.609.
24. The Pottery Gazette, July, 1888, p.640.
25. Moss, 1981, p.80 & p.32.
26. Ibid., p.82. Wilson notes that 'Retardation was also accompanied by a severe depression in prices between 1873 and 1896....in the British context it provoked serious debate over the economy's welfare. Furthermore, profitability suffered badly from the 1870s and because much of the finance for industry came from this source....investment rates would appear to have been low, particularly in relation to American and German trends' He then goes on to quote from the report of the Royal Commission of 1886 "in consequence of the unrenumerative character of the trade of the country (there was) less inducement to the capitalist to embark his capital in productive enterprise" a sentiment heard very frequently in the trade press of the pottery industry. Wilson, 1995, p.89
27. Ibid., p.82 & p.95.
28. Thus, it was observed in 1888 that 'Meanwhile, those who can afford are building new factories with all the modern improvements with a view to cheapening the cost of production, and thus securing their share of unprofitable business' The Pottery Gazette December, 1888, p.1108.
29. The Pottery Gazette, October, 1879, p.375.
30. The Pottery Gazette, December, 1879, p.472.
31. The Pottery Gazette, July, 1899, p.669.
32. Burchill, F. & Ross, R. A History of the Potters Union, 1977, p.128.

33. The Pottery Gazette, October, 1879, p.375.
34. The manufacturers arguments were as follows '1. The depressed state of the state of the trade, 2. The increasing foreign competition, 3. The generally reduced prices at which goods are now selling, 4. That while from time to time, when trade was good, advances in prices were made, on no occasion has any reduction been made when trade was depressed, 5. That in numerous other trades in North Staffordshire, and throughout the country, workmen have submitted to reductions in wages, and that the cost of living is considerably lower at the present time than when the various advances were made'. The manufacturers complained that the workmen would not recognize that foreign competition posed any threat, and indeed in answering this point in the manufacturers argument the Union of the Ovenmen, Kilnmen and Saggar-Makers replied thus 'from the report just published by the Society of Arts on Earthenware productions as shown at the Paris exhibition of last year, we have no need to fear any other nation; and we further state that we have not suffered any more from depression than have our competitors in earthenware production'. In reply to the claim that prices were falling the Union simply disputed the fact and then added that 'many of the materials used in the manufacture are now cheaper than they were in 1871-2 thus allowing you to sell the ware cheaper without reducing us'. Burchill & Ross, 1977, p.126 & p.137.
35. Church, 1979, p.16.
36. The Pottery Gazette, December, 1879, p.472.
37. Ibid., p.472.
38. The Pottery Gazette, January, 1880, p.25.
39. Wilson, 1995, p.88.
40. Scranton, 1989, p.72.
41. Scranton, P., 'Diversity in Diversity: Flexible Production and American Industrialization, 1880-1930' Business History Review, 65, 1991, p.37.
42. Ibid., p.81 & p.84.
43. The Pottery Gazette, October, 1881, p.865.
44. Wilson, 1995, p.93.
45. The Pottery Gazette, February, 1896, p.111.
46. The Pottery Gazette, May, 1883, p.451 & April, 1894, p.418.
47. The Pottery Gazette, December, 1879, p.472.
48. Ibid., p.472.
49. The Pottery Gazette, April 1892, p.327. Perhaps Young was indulging in some special pleading.
50. Church, R., The History of the British Coal Industry, Vol.3 1830-1913 Victorian Pre-eminence, 1986, p.56.
51. Ibid., p.48.
52. MMS. 502 Report on Accounts to August 1878 & MMS 240 Internal Memorandum.
53. The Pottery Gazette, January, 1898, p.88.
54. The Pottery Gazette, November, 1899, p.1277.
55. Stuart, D., (Ed) People of the Potteries, 1985, p.12-4 & p.52. See also Rose, M.B. 'Diversification of Investment by the Greg Family, 1800-1914' Business History, 21 1979 & Scranton, P 'Build a Firm, Start Another: The Bromleys and Family Firm Entrepreneurship in the Philadelphia Region' Business History, 35, 1993.
56. Stuart, 1985, p.235.

57. Lewis, 1989, p.91.
58. First Report of the Royal Commission Into the Depression of Trade and Industry 1886, Appendix: A
59. The Pottery Gazette, June, 1886, p.693.
60. First Report of the Royal Commission of 1886, Appendix: A
61. The Pottery Gazette, December, 1879, p.472.
62. The Pottery Gazette, May, 1881, p.418.
63. The Pottery Gazette, November, 1889, p.729.
64. The Pottery Gazette, January, 1898, p.98.
65. The First Report of the Royal Commission of 1886, Appendix: A
66. The Pottery Gazette, April, 1892, p.319.
67. Pollard, S Britain's Prime and Britain's Decline , 1991, p.10 & p.13.
68. The Pottery Gazette, July, 1885, p.816.
69. The Pottery Gazette, July, 1879, p.329 & December, 1885, p.1422.
70. The Pottery Gazette, December, 1879, p. 472.
71. Wilson, 1995, p.93.
72. Ibid., p.87.
73. Ibid., p.88.
74. Census of Production in the United Kingdom 1907: Final Report, p.751.
75. Hamish Fraser claims that 'One only needs to look at photographs of interiors from the mid-Victorian to the Edwardian period to see the huge market for furnishings that existed' including 'stoneware toby jugs, Staffordshire figurines and Doulton china bowls' Hamilton Fraser, W., The Coming of the Mass Market, 1850-1914 1981, p.193. As fashion goods many ceramic wares had a built in obsolescence that helped to counteract any sluggishness in the domestic market.
76. The Pottery Gazette, July, 1898, p.849.
77. US Tariffs on Ceramic Wares

	China	Earthenware
1861	30%	25%
1862	40%	35%
1864	50%	40%
1883	60%	60%
1890	Same as 1883 but base upon which ad valorem rate was changed so as to bring about an increase in protection	
1894	35%	30%
1897	60 %	60%

- Stratton, H.J. 'Technological Development of the American Pottery Industry' Journal of Political Economy, October, 1932, p.661-2.
78. Pollard, 1991, p.28.
 79. Census of Production in the United Kingdom 1907: Final Report, p.751.
 80. Stratton, 1932, p.662. Indeed, Stratton concludes that much of the blame for the technological backwardness of the American pottery industry upto and into the twentieth century must lie with the high levels of protection it was afforded
 81. Ibid. It was observed, perhaps over-optimistically, in January 1892 that 'It is quite clear

- that American potteries cannot turn out as yet anything at all approaching a sufficient quantity of ware to supply their market, nor is it likely that they will be able to do so for many years to come' The Pottery Gazette, January, 1892, p.35.
82. The Pottery Gazette, February, 1898, p.232-3.
 83. British and Foreign Trade and Industry Memoranda: Statistical Tables Charts 1903-9, p.60-1.
 84. The Pottery Gazette, February, 1897, p.222.
 85. In an article entitled 'The Next step in Potting' having concluded that 'It may safely be assumed today that, upon the whole, machinery has triumphed' and asked 'whether, having abandoned our old methods, we have the best of the new' the author finished by speculating thus, 'Imagine ten of twenty large modern works owned by one syndicate'. Though the suggestion came to nothing the plan clearly resembles the holding company form which dominated the British merger movement of the 1890s. The Pottery Gazette November, 1893, p.999.
 86. Lewis, 1989, p.62.
 87. Scranton, 1989, p.60 & p.130.
 88. The Pottery Gazette, January, 1898, p.98. In January 1896 the same journal, noting that British manufacturers 'worked by the rule of thumb, to make good...china body does not mean all that is necessary for success' concluded of technical education that 'Germany has beaten us in this direction or "Made in Germany" would not be a by-word', p.47. However, in February 1897, though it was admitted that 'Germany is making enormous strides, and notably in those manufactures in which superior knowledge, technical, skill and the agency of the expert in chemistry....can be brought to bear' the Gazette still failed 'however to see that there is anything in this policy of Germany to give occasion for alarm to the British producer', p.181
 89. The Pottery Gazette, February, 1886, p.200.
 90. The Pottery Gazette, June, 1886, p.696.
 91. The Pottery Gazette, November, 1879, p.427.
 92. The Pottery Gazette, May, 1898, p.615. In another display of such attitudes it was observed in 1890s, in an article exploring 'Foreign Competition in the China and Glass Trades', that 'If the English artisan-as we are proud to acknowledge-is the best workman in the world, it is no less true that the British employer, with his enterprise, his wonderful faculty of organization, and his determination not to be beaten, to say nothing of his greater command of capital, cheap coal and the most perfect machinery, can easily beat his foreign rivals' The Pottery Gazette, November, 1893, p.993-5. The challenge posed by Germany had been specifically dismissed in a further article, entitled 'Germany Over-Estimated', of the late 1890s, which declared 'Germany is making enormous strides, and notably in those manufactures in which superior knowledge, technical skill, and the agency of the expert in chemistry or other sciences can be brought to bear. We fail, however, to see that there is anything in this policy of Germany to give occasion for alarm to the British producer' The Pottery Gazette, February, 1897, p.181.
 93. The Pottery Gazette, July, 1893, p.637.
 94. The Potter Gazette, May, 1894, p.436.
 95. The Pottery Gazette, January, 1888, p.6 & July, 1899, p.833.
 96. Ibid., p.833.
 97. Lewis notes that in the 1880s the lighter Sheffield trades saw productivity gains through

mechanization, much as the pottery industry did, 'Thus, in the slump of 1883-6, although output did not fall to the levels of previous recessions, excess capacity caused prices, profits, and wages to drop dramatically....the problem for the light trades was perceived as general lack of "vitality in demand" leading to overproduction and a realization crisis for Sheffield producers highlighted by falling profit margins', 1989, p.76.

98. The Pottery and Glass Trade Review, March, 1944, p.142 & p.145.

99. Ibid., p.145.

100. Wilson, 1995, p.91.

4: THE RESOURCE RESPONSE OF POTTERIES' FIRMS, 1860-1900.

The constraints on the further development of the industry provoked a range of responses from manufacturers in the Potteries. This chapter will focus on the resource response, with a particular reference to mechanization. A powerful spur to mechanization was provided by the competitive challenge raised by Continental and American producers, and it was recognized that the

very cheap rate at which the Continental china is produced, should warn every potter that his only chance of a prosperous trade is to encourage that trade by cutting down expenses and the cost of production, until the foreign element is driven from the field (1)

Under such pressure manufacturers in the Potteries looked to mechanization primarily as a means of reducing their costs. However, the determination and implementation of effective resource responses proved difficult. This chapter will show that up to, and beyond, 1900 the progress of mechanization in the pottery industry was gradual, uneven, and partial, inhibited by the structure and the culture of the industry. The primary determinants and implications of this pattern of response will be explored, and it will be argued that the mechanization which did take place was of limited effectiveness in meeting the competitive challenge outlined above.

The chapter will first sketch the basic productive processes in pottery manufacture, before providing an outline of the timing, extent, costs, and sources of process innovation, and of the paths, rapidity, and efficiency of their diffusion. These themes will be considered in the context of the organizational structures, cultures, and human resources of firms. The impact of mechanization on the industry's product-market orientation will be examined in greater detail in chapter 6. A series of comparata will also be introduced. Most important amongst these will be the cutlery trade of Sheffield, the Yorkshire woollen trade and the boot and shoe trades of the East Midlands. In the second half of the chapter attention will focus on the impact of mechanization on the industry and in particular on its ability to alter cost

constraints, in its effects on the other resources deployed by firms, especially human resources, and on its implications for the overall structure of the industry.

The process of pottery manufacture had by the late nineteenth century long been subject to considerable division of labour. Though it has been asserted that the pottery industry is 'so varied that no "flow diagram" can represent what goes on at different times or places....

Sequential arrangements may vary.... There is thus no "logical sequence"', four basic steps can be identified in most examples of pottery manufacture, each subject to a variable degree of further sub-division (2). These stages are, i. the preparation of the body, involving the conditioning, purifying and mixing of clay and a wide range of other materials, such as the bone found in bone china, in order to form the plastic body or liquid slip from which wares are formed, ii. the forming of the ware, regarded by many manufacturers and workers of the late nineteenth century as both the most difficult and the most controversial stage in relation to the question of mechanization, iii. the firing of the ware, wares often being fired twice, and, iv. the glazing and decoration of the ware, decorating again employing many different techniques, from hand-painting and gilding to lithographic printing.

These operations have to be performed in sequence and are very difficult to separate physically, it being impractical to transport fragile semi-finished wares between sites or firms, and pottery manufacture may be characterized as largely integrated. Therefore, no matter what the size of the firm, pottery manufacture was almost always carried out in one place and a large majority of firms in the Potteries occupied a single site. Firms occupying multiple sites, such as the giant Brown-Westhead, Moore and Co. recorded in the Hanley Rate Book of 1882 as occupying three sites with RV's ranging from £173 to £1366, were the exception and typically made a particularly wide range of products, including both china and earthenware (3). Thus, the description in 1908 of potbanks, as these factories were known, as collections of 'functionally separate workshops' should not be read as suggesting that these workshops were independent either of each other or of the firm. The workers, with their highly developed and specific skills, may have stayed within their shops but each pot had to pass through the hands of all.

The first and last of these four stages were perhaps the first to undergo a degree of mechanization. Celoria notes that the preparatory sub-process known as wedging ‘could be fully mechanized...by the first third of the nineteenth century’ (4). Indeed, the preparation of many the necessary materials by crushing or grinding had long required some machinery, and many different types of mill had been adapted from other uses, powered initially by water and increasingly in the nineteenth century by steam. As will be shown in chapter 6 some of these functions were being carried out by specialized firms by the mid-nineteenth century. However, with many firms naming and promoting their own variations on standard bodies, such as the graniteware from which most common tableware was fashioned, the preparation of the final body was generally carried out by each firm on its own premises from semi-processed materials and was surrounded by some secrecy.

4.1 Mechanization: Timing and Extent.

Generalizations about many aspects of mechanization in the pottery industry are now extremely difficult to make. A few cases of invention may be pinpointed fairly accurately, but the processes of innovation and diffusion are often more obscure. In particular, it is difficult to determine the point at which a machine or technique was no longer best practice but was instead in general use. There are several reasons for this. Firstly there is a shortage of documentary evidence, particularly lacking in this respect being the papers of the various potters’ engineers.

The pottery industry was also peculiarly haphazard in the unevenness of its mechanization. This is true both within and between firms. Most significantly the industry did not, as Whipp rightly notes, conform easily to any simple core/periphery model, in which core firms are large, stable, innovative, and deploy best practice and peripheral firms are small, transient and are marked by poor practice (5). Chapter 5 will demonstrate the relatively limited extent of mechanization at the very large and long-lived firm of Minton in the 1880s for instance, whilst US Consul Lane observed in 1883 that Wedgwood’s world famous Etruscan works were ‘worth a visit. They are quaint and old-fashioned in appearance (and) are precisely the same as when Wedgwood, in the fullness of his powers, directed the industrial forces and

produced beautiful and perfect work' (6). Similarly, Mr. J.A Redgrave, H.M. Superintending Inspector of Factories, told the Truck Act Committee of 1908 that in the Potteries 'there are all kinds of place' (7). Moreover, US Consul Schoenhof observed in 1886 that 'One still sees in the same factory with steam power and other appliances of the most improved pattern, boys turning the wheel for the potter' (8).

A further complication is provided by the contradictory nature of contemporary assessments of and attitudes to mechanization in the industry, itself indicative of the unevenness indicated above. Thus, whilst it was being asserted by one commentator in 1892 that 'This is the machine age, particularly in the Potting trade....Machinery is constantly being applied....and this mechanical aid has become essential in order that the demands made upon the potter may be met with rapidity'. Another, writing in the same year, felt that 'There are many articles of pottery which it is almost impossible to make except by the hand labour of the hollow-ware presser' (9). As late as 1908 Mr. Burton, Chairman of the Joint Committee of the Pottery Manufacturers of Great Britain, could still say of potting that 'it is a very complicated trade, and an old trade, in which the handicraft still survives, perhaps more than in any organized trade in the country. Machinery for performing many of the operations attendant upon the production of pottery....has been very slowly introduced into our trade' (10).

Nonetheless, so long as the qualifications introduced above are borne in mind, it is possible to propose a broad framework for the timing of mechanization in the industry, into which the more fragmentary detailed evidence on issues such as cost may then be inserted.

Warburton, with a lifetime's experience in the trade, suggested in 1931 that the Industrial Revolution, which he defined as the replacement of manual skills by machinery 'began for the Potteries in the 1870s, with the preceding twenty years as an introductory period' (11).

Of this preparatory period Celoria notes that all innovations, most notably the greater use of steam power, essentially 'complemented human skills without replacing them. Throughout the industry the skilled hands of the craftsmen ultimately fashioned and shaped the wares' (12). Warburton was careful to lay emphasis on the gradual and drawn out nature of the process, commenting that 'The displacement of the hollow-ware presser by the jiggerer and

the caster was taking place roughly during the fourteen years preceding the European war. Similarly, Mr. Burton, when asked in 1908 if best china tea saucers were still thrown answered 'very few are now' (13). Thus, it is proposed that the period 1870-1914 was the most significant phase in the mechanization of the industry, though the process had far from runs its course by the latter date. Warburton also alerts us to the fact that very rarely in this period was skilled labour entirely displaced by any innovation. This important point will be returned to later in this chapter. Certainly Warburton's claim as to the timing of mechanization is also supported by a reading of the trade press. Both debates over the importance and implications of mechanization and reports of firms re-equipping with new and more advanced plant appear with increasing frequency in the pages of The Pottery Gazette from the late 1870s, and during the 1880s in particular.

This broad framework is further supported by the emergence in the same period of a dedicated and localized sector of firms, styled potters' engineers, making machines for the industry. Many of these firms, including the largest and most important, William Boulton and Co., began life as general engineers. As late as 1867 Boulton's advertisements in local trade directories described the firm as 'Engineers, Iron and Brass Founders, Manufacturers of Every Description of Ironwork for Potters, Colliery Proprietors, Paraffin Oil Makers, Brick and Tile Manufacturers, Builders etc.' (14). That Boulton, described by the novelist Arnold Bennett as a 'lone and wonderful genius', had not specialized in the design and manufacture of pottery machinery by this date is clearly significant when, by 1898, the trade press could claim that there was no 'branch of the potting industry that Boulton and Co. have not materially assisted with some specially designed mechanical contrivance for the saving of labour....enabling the trade to compete successfully with their previously better equipped continental competitors' (15). The transformation of the firm in the years between 1870 and 1900 clearly suggests a quickening pace in the mechanization of the industry. By way of comparison it seems that the Sheffield cutlery trades were not able to support a similarly specialized engineering sector at any point in the nineteenth century. Taylor argues that the cutlery industry 'provided insufficient stimulus for engineers to design and manufacture machines, the demand for which would have been too small to justify development' (16).

In order to further explore the mechanization of the pottery industry, and in particular the diffusion process, the progress of two specific machines will now be explored in more detail. Undoubtedly the most important of the machines being diffused through the industry in the late nineteenth century, both practically and symbolically, were the jigger and the jolly (See Appendix C:1 for descriptions). These closely related machines had this dual significance because they affected those stages of the manufacturing process, the forming or shaping of the ware, where the wages and the status of the workers involved were highest and where mechanization seemed least likely to many owners and workers alike. The jigger and the jolly had the potential therefore to do the most to alter the costs constraints prevalent in the industry, whilst at the same time also weakening its cherished claim to remain as much a craft as an industry. By the 1870s and the 1880s neither the jigger, used in the making of flatware (that is plates, saucers, etc.), and the jolly, used in the making of hollow-ware (that is bowls, cups, etc.), could be considered of recent invention. The jigger in particular can be traced back to the 1840s, when first John Ridgway in 1840, Charles Mason in 1844, and, finally, Copeland and Garrett in 1847 attempted to introduce the machine into North Staffordshire. These attempts were defeated as much by technical shortcomings as by the concerted opposition of the unions (17). The machines seem next to have appeared in the Potteries in the early 1860s. In 1880 Godfrey Wedgwood described how in 1863

Mr. Ragout-one of the largest houses on the continent....presented him with a jolly, telling him that they used it in his works, and that a man could be taken off the roads and taught to use it in two months. He (Wedgwood) showed it to his men but they would have nothing to do with it. (18)

By 1879 Mr. Pinder, of the firm Pinder, Bourne and Co., claimed that the jigger/jolly, his definition being imprecise, was still 'only adopted to a very limited extent, the houses using it being almost entirely engaged in the American trade'. This firm had itself first installed jollies in 1874 (19). It is not surprising that mechanization should have gained its first toehold in this section of the trade, which consisted principally of large volumes of common earthenware tableware. However, despite the claims made by Mr. Ragout to Godfrey

Wedgwood, the limited effect of these machines in displacing skilled labour must again be reiterated. In 1884 a Staffordshire Potteries Supplement to the Illustrated London News described, quite accurately, the jigger as 'a modification of the potter's wheel' and noted that it occupied 'an intermediate position' marking 'the transition which is slowly being made from the simplest position of pure handiwork by the introduction of mechanical contrivances' (20).

Nonetheless constant improvements were made to these machines and the sophistication of some examples increased rapidly. Boulton's Patent Automatic Double Jigger and Jolly, which the won the Highest Award for Potters' Machinery at an International Inventions Exhibition in 1885, was described in the maker's catalogue as 'self-contained and automatic, raising the moulds last filled out of the same head, by the same movement picking up two others, slides the whole table along, placing the two filled moulds on the raised moulds, and the others in the revolving heads'. Boulton commended his machines as producing 5-6,000 articles a day and saving on the wear and tear to the plaster moulds (21). In reporting on this new machine the trade press also noted its initial sales and these are indicative of a cautious approach to the installation of new plant, just one had gone to Minton's and two to the Hanley firm of Powell, Bishop and Stonier (22). A more thorough going adoption of new techniques was most likely either where the firm was young, as in the case of the Empire Porcelain Co. whose new factory of 1898 for 600 hands was equipped only with jiggers and jollies and contained no traditional wheels, or where an old firm built entirely new premises (23).

We have seen that the diffusion of the jigger/jolly was slow and uneven. It is perhaps not surprising, given the long tradition of resistance to 'jollying' in the region and the fact that the workers directly affected were some of the mostly highly unionized in the industry, that the reappearance of the jigger and jolly from the 1870s should have aroused suspicion and resentment amongst some sections of the workforce. In 1877 the union paper the Potters Examiner appealed to a notion of 'the trade', arguing that both the jigger and jolly were

a waste of time as well as of material, and can only, where used, prove detrimental to the production of good and sound ware, and thereby lower the fame of the Staffordshire Potteries in the renowned production of the finest and choicest ceramics in the whole wide world. (24)

Similar arguments were deployed by unions against the riveting and finishing machines introduced into the boot and shoe trades in the 1880s. As will be shown later in this chapter such attitudes were influential in the reception of mechanization. However, the organized opposition to machinery seen in the 1840s did not reappear in the 1870s. Instead resistance took the form either of individual refusal to use the machines or disputes over the adjustment of piece rates, a vital issue which will be explored in some depth shortly. What it is important to emphasize at this point is that the very lengthy period which the jigger and jolly took to diffuse through the industry, more than four decades from the 1870s, cannot be ascribed solely, or even largely, to worker resistance. If employee or union resistance alone did not inhibit the spread of the jigger/jolly after 1870, then what other factors influenced and slowed the process of mechanization?

It has been shown that the jigger and jolly underwent at least thirty years of adjustment and improvement before any significant deployment on a commercial scale occurred, and that thereafter their refinement continued and quickened in pace. The innovation of the jigger/jolly therefore conforms to Lloyd-Jones and Lewis' interpretation of Rosenberg's work and their conclusion that the 'speed with which techniques are innovated from the basic innovation to the subsequent diffusion will depend upon a series of modifications and adaptations', the sub-innovatory timescale becoming stretched as the technique or plant 'goes through innumerable minor modifications and alterations in design'. The timing of some aspects of the sub-innovatory process may be determined largely by technological factors, and the mechanization of much of the manufacturing process in pottery was undoubtedly difficult in simple technical terms, but the process may also be affected by the business structure of the industry in which innovation is taking place (25). Lloyd-Jones and Lewis argue that 'given a trajectory of improvement, uncertainty concerning the time path of

sub-innovations may well affect entrepreneurial expectations' before going on to suggest that this is particularly so in an industry whose 'structure is characterized by large numbers of small-scale firms operating in a highly competitive environment' (26).

Chapters 2 and 3 have demonstrated that just such conditions existed in the pottery industry in the late nineteenth century. Moreover, Moss provides theoretical observations on the linkages between competitive structure and uncertainty, whilst the pottery industry trade press provides copious anecdotal evidence of considerable uncertainty over both the timescale and outcome of the sub-innovatory processes involved in the mechanization of the industry (27). The linkages between industry structure, uncertainty, and the innovation/diffusion process suggested by Moss are several. On a general level he notes that uncertainty, a product of competition, can lead to 'business strategies which rely as extensively as possible on resources and activities with which the firm is familiar' and that the effect of uncertainty in leading 'to inaction....enables us to explain observed investment behaviour' (28). However, he also suggests that the 'management resources of the firm impose one limit on the rate at which the resources of the firm may be altered' and that if there is a difference between invention/innovation and imitation/diffusion 'it is that invention requires a greater conceptual leap than imitation and that innovation involves greater risks and costs' (29). Thus, it may be argued that not only did the small-scale and competitive structure of the pottery industry slow the diffusion of machines such as the jigger by inducing uncertainty but also that the organizational structures of firms in the industry and the background of its entrepreneurs placed a further managerial constraint on resource development. Some of the dimensions of this constraint will emerge shortly in a detailed discussion of the adjustment of piece rate systems in the industry to the introduction of new technology.

Elbaum, in a study of the British steel industry, also explores the linkages between industry structure, the size and growth of market demand, and innovatory patterns. In particular, he argues that the adoption of new and improved techniques of production, especially those likely to increase the volume of production, is most likely when markets are secure and growing. Undoubtedly, the Potteries' markets were growing, though not steadily,

throughout the last quarter of the nineteenth century, but their security appeared far less certain, particularly from the 1880s and in those markets, such as those in the US, where mass production was becoming more important. Thus, the effect of growing foreign competition cannot be reduced simply to an inducement mechanism leading to resource development. Instead, its influence must be seen as more ambivalent. Elbaum makes further arguments relevant to the pottery industry, most notably that diffusion will be slower the 'smaller the prospective efficiency gains' and that 'gradual and evolutionary' technological progress may cause firms to make 'suboptimal investment decisions which result in a relatively slow rate of technological progress' (30). The case of Mintons and Powell, Bishop and Stonier buying just one or two of Boulton's new machines in the mid-1880s may be considered an example of such suboptimal decision-making.

It is as hard to generalize about the costs of mechanization as it is about its timing, but some indication of an upper limit may be given. The average number of hands employed by firms in the Potteries in 1911 was 84. Thus, the Empire Porcelain Co., employing 600 in 1898, was clearly a very large concern, it was also exceptional in dispensing completely with the potters' wheel. The firm also used automatic batting machines and patented continuous drying kiln technology and must be considered in the technical vanguard for the period. The firm's purpose built factory in the Shelton district of Stoke-upon-Trent cost £10,000 to build and £5,000 to equip, and whilst other firms certainly spent as much significantly higher levels of expenditure on machinery seem unlikely. Certainly the trade press, reporting frequently on the investments undertaken by firms, contains no evidence of greater sums being spent. As has been suggested the kind of investment made by the Empire Porcelain Co. was not unprecedented. In 1884 it was reported that 'The whole of the machinery of Messrs. Maw and Co.'s extensive new works....have been fitted up by Messrs. Hartley and Arnoux, at a cost of upwards of £5000' (31). It seems likely though that in most cases a firm's expenditure on machinery was much less than that of Maw & Co. and also tended to be ongoing. Evidence presented in chapter 5 demonstrates that Mintons for instance spent on average 1% of total costs p.a. on new machinery throughout the 1880s and 1890s (32)

As has already been indicated invention and innovation in pottery making-machinery came increasingly from specialized engineering firms, and the relationship between these engineers and pottery manufacturers is also of some interest in terms of the diffusion process. In general this relationship was felt to be most effective when a collaborative approach was adopted. A new clay press developed jointly by the manufacturers G.W. Turner and Sons and an engineer called Renshaw led The Pottery Gazette to commend such collaboration, noting that

many manufacturers might offer valuable suggestions concerning the improvement of the machinery used in the trade so as to facilitate and increase the work executed by it. It is for manufacturers to know the requirements of their machinery, to see the shortcomings of it, and so by their practical knowledge to suggest alterations and improvements to their engineers. It is by such co-operation the engineer, with his skill, works out the beautiful machinery of the day. (33)

Evidence from the catalogues of William Boulton and Co. makes it clear that the firm, though endeavouring to make and supply standardized machines, operated very often as consulting engineers. The Introduction to a catalogue of 1902 notes that 'We make also modifications of the machinery shown here, to suit particular conditions of materials or site, which is quite impossible to describe'. This consulting role was expanded upon in a page of further 'Remarks'. Point 3 notes that 'The machines specified herein are the standard sizes in the various classes, but quotations with drawings and full particulars, will be given when required, meeting any special enquiry' (34), whilst point 4 adds that

To avoid delay and ensure accuracy in quoting, all enquiries should be as full as possible, and should express the exact nature of the work to be done by each Machine, or should give detailed specifications for all our guidance. Where, however, any of the Machines specified herein meet all the conditions of the inquiry it is sufficient that parties wishing us to tender for the same should refer simply to the distinguishing number (35)

Surprisingly, perhaps, it was also noted though that both 'A quantity of the general, and a number of the special, Machines are always kept in stock' (36). The role and impact of Boulton and the other potter's engineers was quite different, therefore, to that of the American owned British United Shoe Machinery Co. in the boot and shoe industry in the 1890s. The market power of this much larger firm enabled it to use restrictive leasing deals to virtually impose standardized and fully integrated lines of machinery on the shoe manufacturers of the East Midlands, leading to a more far reaching transformation of the productive processes of that industry than was achieved in the Potteries in the same period. Nonetheless, Church's conclusion that the British United Shoe Machinery Co. 'by taking care of research and development, and providing continuing maintenance and information services....helped to offset those entrepreneurial deficiencies which were due to technical shortcomings owing to a lack of knowledge and experience' may be said to be broadly true also of the role played by specialized firms in the Potteries (37). Certainly, the average pottery owner/manager, though often possessing a deep knowledge of the trade, had no technical training on which to draw. When asked if a typical large and successful manufacturer had 'anything like a scientific education' Godfrey Wedgwood replied that he did not 'know of any such man who has had any special education'. Indeed, Wedgwood felt that 'The people who do succeed in our business are men who have risen from the bench' (38).

The relationship between manufacturers and engineers in the Potteries would seem to support Moss's criticism of Schumpeter's definition of invention as an 'extra-economic activity', reinforcing Schmookler's assertion that invention is an economic activity because it is 'entirely demand induced' (39). Invention, innovation and diffusion in the Potteries were part of a continuum which is 'best treated as a single economic process which can, but need not, entail some division of labour' (40). However, Moss adds that it is often difficult to 'distinguish the boundary' between invention and innovation, whilst also arguing that there is 'nothing to distinguish the boundaries of the firm-the specific collection of resources comprising one firm....except an organizational structure' (41). It is clear then that in the Potteries a division of labour between invention and innovation, defined by discrete

'organizational structures', was evolving with the effect, if not the intention, of limiting the scope and cost of the responsibilities falling on manufacturers.

However, though taking on the costs of research and development, the growth and concentration of a machine-making sector in the Potteries may also, in the long-run, have acted as a constraint on full and effective mechanization. Saul has argued that the almost uniquely British institution of the consulting engineer ensured that 'Love of the technical product was slow to give way to love of the technique of production' (42). In Lancashire the localization of the capital goods industry 'meant that....machine design was geared towards the technological requirements' of the district, and in particular to the 'complementary capabilities of its labour supplies'. This was true also of Staffordshire, where labour supplies were very strongly rooted, often resistant to change, and central to the existing resource bases of all firms (43). Indeed, the jigger and the jolly are excellent examples of machines that complemented rather than conflicted with existing skills. The form and outcome of this complementarity between technological evolution and human resources in the pottery industry will be explored further shortly and will be shown to have inhibited the realization of economic gains from mechanization.

Moreover, though manufacturers and engineers frequently collaborated manufacturers were much less likely to act in concert with one another. Thus, though it was reported in the British trade press that the United States Potters' Association, at its Baltimore conference of 1885, had offered a prize 'for the invention of any machinery that would tend to facilitate and lessen the cost of manufacturing pottery' no similar initiative occurred in the Potteries (44). Calls for joint exercises in marketing, again on an American model, were also made in the 1880s but again fell on deaf ears, as will be shown in chapter 6. A strong individualism, identified also by Scranton in the Philadelphia textile trades, was a prominent feature of the business culture of the Potteries and will also be explored later, most notably in chapters 7 and 8.

How did the progress of mechanization in the North Staffordshire industry compare to that occurring in other centres, both at home and abroad? Was the pattern of mechanization seen

in the Potteries repeated elsewhere? Again firm conclusions are difficult to reach. It has often been asserted in the past that the out-potteries, that is potteries elsewhere in Britain, tended to be more technically advanced than those in Staffordshire. A dealer located in the north reported in 1883 that northern manufacturers were 'putting out capital daily in the latest machinery', and The Pottery Gazette commented in 1885 that manufacturers in northern England had 'every advantage in their favour in the form of mechanical appliances of the newest and most improved and approved designs-steam batters, jollies, mills etc.'. However, attention must also be given to Celoria's argument that 'By the 1880s the situation had been transformed and Glasgow, Newcastle-upon-Tyne and London had too small a share of the industry to be technical leaders' (45).

Judgements on the American industry are similarly contradictory. An English report on American potteries of 1883, noting that 'The processes employed are of the most improved kind, and the potteries are well arranged, very orderly and highly commendable', is in agreement with Thistlethwaite's conclusion that conditions enjoyed by pottery manufacturers in the US 'as in other sectors of American industry led to the rapid introduction of power-driven machinery' (46). However, Stratton, on the basis of more complete evidence, argued that up to 1914 'English potters, themselves conservative, were often decades ahead of American potters in the adoption of better methods' (47). Ironically Stratton believed that this technical lag could be traced to the English roots of the American industry, the American Ceramic Society admitting in 1900 that 'It is only too true that we have transplanted the inherited secrets and family monopolies of the English potter and the art is suffering severely today from the bias and barriers that circumscribe' it (48). Stratton's conclusion is that in the late nineteenth century it was only high tariffs which allowed the fledgling American industry to grow to the point where, in 1932, 'Only porcelain (and) earthenware of high artistry and long-established reputation continues to come into the industry' (49). As this suggests American potteries concentrated almost exclusively on the production of large volumes of cheap goods, the most significant gap between English and American potters was thus in attitude rather than in technology. The Americans developed methods of 'quantity manufacture more suited to a mass standardized market, than the English emphasis on small batches, variety and quality'. American firms, instead of

‘working at a slow speed to produce a small quantity of ware with as much as 90% of firsts. as...in Staffordshire,...turned out from 35% to 140% greater production, but was content with as little as 60% firsts’ (50). Commensurate with this difference in approach was the fact that in Staffordshire ‘the master potter manufactured on orders while his American counterpart manufactured for stock that had to kept in readiness for prompt dispatch’ (51).

Differences between the British and Continental industries, especially those in Germany, also turned as much on orientation and organization as they did on technology. It has already been shown that Wedgwoods attempted to reintroduce the jolly into the Potteries through the influence of contacts in France, and in 1879 a representative of the firm claimed that ‘It would seem that the foreign houses had the advantage of labour at half price. Further than that, they could introduce machinery much more easily than here’, though without explaining why he thought this was so (52). However, though a report of a visit made to a factory in France in the same year found that ‘all the machinery, is worked by steam power’ these machines were only the ancient potters wheel, used for turning and throwing. It is likely that mechanization was as uneven on the Continent as it was in the Potteries.

Still, Stratton did find some significant differences in practice between Germany and both the Potteries and the US. He points in particular to two issues; ‘innovations in firing principles’ and what he terms ‘laboratory control’ (53). Both laboratory control and many of the innovations in firing, such as the Seger cone invented by German ceramist H.A. Seger in the 1880s, did not lead directly to economies of scale but did allow the realization of other economies by reducing waste and spoilage, which the American experience had shown tended to accompany shifts toward mass production under existing technological conditions. However, German experiments in continuous firing technology did point directly to mass production, as Stratton made clear in his exploration of why the technique had been slow to be transplanted to both Britain and the US. Firstly, continuous kilns cost more to build than the previous types, though the ‘increase in capacity is...more than in proportion to the increase in cost’, secondly, and most importantly, ‘The large capacity of the tunnel kiln robs it of flexibility and makes it unfit for a small pottery with a fluctuating output. The potential savings will go unrealized if the kiln is not kept constantly in operation’, issues which it will

be shown were significant for many firms in the Potteries (54). Thirdly, such a radical change in technique generally required the 'advice of scientifically trained men', in which both American and English potters were lacking (55). However, the impact of this invention in the period under study should not be over estimated, for though a successful example had been constructed in Germany in 1859 Stratton does note that 'By 1914 installations had been made for porcelain dinnerware manufacture in Germany, Italy, France, and Belgium, probably six or eight kilns in all' (56). Nonetheless, that such important developments were invented and innovated in Germany and not the Potteries cannot be overlooked.

4.2 Mechanization: Reception and Impact.

A broad outline of the progress of mechanization in the North Staffordshire pottery industry in the late nineteenth century has now been sketched and factors important to the pattern seen introduced. In order to now explore the impact of this process of mechanization the integration of new machines and techniques into existing working environments and practices will be examined. This process of integration was mediated more by compromise between manufacturer and worker than by conflict and was, it will be argued, both a further cause and a significant outcome of the gradual and partial mechanization already uncovered. In essence, the prolonged course of mechanization in the pottery industry contained a self-reinforcing mechanism, a negative feedback, which constrained the effectiveness of the resource responses made by firms.

Evidence as to the impact of mechanization on the cost profiles of firms in the industry in this period is limited and ambiguous. This is due not only to the passage of time, contemporaries also argued fiercely over the impact of mechanization. Moreover, these arguments were not only between manufacturers and labour, as might be expected, but also between manufacturer and manufacturer. Thus, the following puzzle, framed in 1893, which noted that 'It may fairly be questioned, however, whether having abandoned our old methods we have made the best of the new....Having sacrificed so much for the cheapness of production, have we made too little-or too much-of all or any of our new devices', was both of real import and without an easy answer (57).

Evidence presented at the wage arbitration of 1879 allows these doubts to be seen more clearly. Before the Arbitration Board a number of manufacturers argued, in the words of Mr. Pinder of Messrs. Pinder, Bourne and Co., that through mechanization 'The masters were put to a very large outlay, and the men....much more benefited by it than they were' (58). Similarly, at the arbitration of the following year Mr. E.J. Baxter of the large Hanley firm Clementson Brothers expressed the opinion that 'With respect to hollow-ware pressers....the new modes introduced had been of service to the workmen and with machinery they could get more money than they could under the old system' (59). This claim finds support in average net earnings figures presented in the trade press in January 1882. These suggested that a hollow ware presser earned on average £1. 13s. 7d. per week and a hollow ware presser working with a jigger £2. 8s. 0d. (60). Behind this difference in net earnings lay a difference in rates of pay for hand and machine assisted labour, made clear in the evidence of Godfrey Wedgwood at the arbitration of 1880. At Wedgwoods the piece rates in 1880 for making a 7" muffin, a small plate, were 2s. 6d. by hand, 2s. by hand jolly and 1s. 10d. by steam jolly (61). Though the unions disputed the manufacturers' claims that they could earn more by machine work, and complained vociferously that further claims that the industry was then highly unprofitable could be neither substantiated nor disproved because manufacturers would not submit their books for examination, it is clear that mechanization had at least the potential to increase the productivity of labour in the industry and reduce unit costs. Why then were pottery firms, on their own evidence, not able to realize the advantages these different rates of pay for hand and machine labour offered in terms of reduced cost constraints and increased profitability, or at least were not able to do so with any consistency? For as a manufacturer noted in 1888 there was little or no profit left in the industry 'not withstanding the existing cheapened modes of production' (62). As in Sheffield the 'question of wages in relation to relative unit costs became of major concern to.... businessmen faced with competitive pressures and falling profit margins' (63).

Statistical data which might illuminate the impact of mechanization on productivity in the pottery industry is sparse. Nonetheless, in introducing a discussion of deductions in the Sheffield cutlery trade and the Potteries, the report of the Truck Act Committee of 1908

stated unequivocally that in the pottery industry machines 'gave the worker increased power of production' (64). This conclusion was drawn largely from the evidence of J.A. Redgrave, H.M. Superintending Inspector of Factories, who, when pressed on the basis and implications of different rates of pay for hand and machine work, answered thus.

- Q.659. What we are anxious about is the comparison. Take the manual worker first of all? - His output is less
Q.660. Then he goes to where there is steam power; his output is more and his piecework is subject to a deduction? - Yes. (65)

Qualified confirmation of this conclusion is supplied by comparing figures for the gross output by value per person employed in pottery workplaces with and without a source of power, abstracted from the Census of Production of 1907. The gross output per person in powered works was £112 p.a. and in unpowered works £88 (66). However, higher material costs in powered works, due to higher levels of coal consumption, will probably have meant that the difference in net output figures was considerably smaller. Moreover, the fact that steam was used tells us little about the processes being used.

However, as has been suggested, the manufacturers' claims that working with machinery did enable workers to earn higher net wages, were denied by the workers and their evidence cannot be dismissed out of hand. For instance a member of the Hanley Lodge of the National Order of Potters wrote to the Staffordshire Knot newspaper in 1885 to argue that

I recognise this (the pug mill)....as the first practical introduction of machinery in the potting industry, and (draw) your attention to the fact that the workman was at once required to sacrifice a part of his wages to defray the cost of working machinery that was, and continued to be, the employers own property, instituted with the express intention of cheapening production and without perceptibly increasing the workman's earnings (67)

Similarly, though mechanization would appear to have increased productivity without significantly increasing wages, the complaint from manufacturers that they had not benefited,

or at least not greatly, from this process was also too persistent to be readily discounted. In order to explore this problem the notion that the path to mechanization had to be negotiated will be developed, built in part upon Whipp's concept of the 'recomposition of skill across time', but also employing Moss's theory of business strategy and the concept of business culture (68). These tools will be used to examine the positions from which workers and owners entered into both specific and more generalized processes of negotiation. In essence, it will be argued that gradual, partial, and uneven mechanization allowed the process of adjustment to changing techniques and technologies to become characterized by compromise. Those compromises inhibited the realization of economic gains from mechanization.

Firstly, it is clear from the report of the Truck Act Committee of 1908 and other sources that both employers and employees, encouraged by the gradualism with which mechanization had occurred in the industry, had consistently sought to minimize any disruption that the process might have caused. Though capital and labour sought to preserve different things from disruption the net effect was to allow the survival, post mechanization, of long established work practices and arcane and complex systems of payment. The new machines and techniques had to adapt themselves to the rhythm of existing practices and men and not vice versa (69). Secondly, and closely related in origin and effect, mechanization did little to alter the composition of the workforce. In particular it did not give manufacturers significant scope for replacing expensive skilled adult male labour with cheaper semi or unskilled labour, particularly that of females and adolescents. Thirdly, because mechanization was only partial within individual units of production, not extending to every corner of the productive process, it was not conducive to the full realization of economies of scale and was indeed as likely to cause bottlenecks as it was to eliminate them. Moreover, because the jigger and the jolly, even when steam powered, could be run either as batch or mass production technologies, higher throughput and economies of scale were less likely when such machines were introduced in a piecemeal fashion into the existing resource base, organizational structure, and market-orientation of a firm. Finally, in the increasingly competitive environment of the 1880s and 1890s a reduction in the cost of production was

often seen as an opportunity to enlarge market share through price cutting rather than as a chance to maintain or increase profit margins.

What were the respective positions adopted by manufacturers and workers in relation to mechanization; what was each group, as it was expressed above, trying to preserve? One clue as to the breadth of concerns over mechanization is contained in a comment from 1899, 'Just as machinery has crushed, and is crushing the skilled artisan, so it is crushing out the small manufacturer' (70). This quotation signals that mechanization was seen as a complex affair with implications not only for the skilled workers most directly affected but also for the organizational structures and principles of firms and even, though rather more distantly, for the structure of the industry as a whole. These realizations hung over manufacturers as they moved towards mechanization and their response to them were determined by two broad forces; firstly by the existing resources and structure of their firms, both physical and human, and, secondly, by the business culture of both the firm and the wider district.

Moss, building on the work of Penrose and others, contends that the existing resources of a firm provide a powerful determinant of further resource developments. Penrose, who, as Wilson notes, 'refocussed the debate away from the concern of traditional theories....towards an understanding of the way in which management utilizes the talents and resources at its disposal, providing a more dynamic model with which business historians might associate', expresses one dimension of this effect thus 'The selection of relevant product-markets is necessarily determined by the "inherited" resources of the firm-the productive services it already has'. Product-market selection can in turn act as an important influence on investment and resource strategies (71). Moss terms this a focusing effect, arguing that

there are forces within the firm which focus the attention of its decision-makers on particular bodies of knowledge particular objectives....At every stage of the investment decision the attention of the management team of a firm will be focussed upon potential courses of action by the resources of which the firm is composed (72)

For pottery firms of the late nineteenth century this focusing effect stemmed largely from their highly complementary human resources, managerial and productive. Firstly, both management and workers, because of what may be termed the demography of work in the Potteries, possessed particular bodies of knowledge and skill highly specific to existing practices. Moreover those attributes were highly generalized and thickly supplied ones in the district as a whole. Secondly, the nature of the workforce, its skills, recruitment, training and disciplining, allowed management to stay very light, promoting the retention of the proprietary or familial capitalism in which the small-scale business structure of the district was rooted (73).

Moss's work suggests a relationship between productive processes and the role and 'shape' of management and it would seem that a highly sub-divided yet integrated production process such as that found in pottery would demand a correspondingly sophisticated form of management marked by division and specialization. This was not the case in the Potteries, where ownership, either by individual, family or partnership, and management were almost wholly synonymous and professionalized, bureaucratized managerial hierarchies were rare. The Census of 1871 for Burslem, the location of many large and important manufactories, records just 160 clerks and office staff and 51 managers, a proportion of whom must have worked in industries other than pottery, perhaps most obviously in transport and other forms of communication. Similarly, the Census of Production of 1907 enumerated 3,862 salaried workers in the ceramic industry, 5.7% of a total workforce of 68,186 (74). Again it cannot be assumed that all salaried workers would have been viewed as management. The relatively 'light' management structures that were typical of the pottery industry were in fact encouraged by the marked division of labour and the further characteristics of extensive gang-working, sub-contracting, and an important role for the family, explored in depth by both Whipp and Dupree (75). Through this system much of the day-to-day regulation of the pace of work, if not its content, was allowed to reside in the hands of certain key workers. This point was made by William Burton in his evidence to the Truck Acts Committee when he said of the head slipman that 'When you have a man in that position you do your best to keep him...because so much depends on him' (76).

This system of employment conditions and work practices also lessened management responsibility for supervision and discipline, potbanks being described, again to the Truck Acts Committee, as 'places by themselves with hardly any supervision....the ordinary discipline of the factory or machine shop is not brought to bear upon them' (77). Moreover, the payment system known as 'good from oven' also shifted much of the onus for the vital issue of quality control on to key workers (78). Whipp asserts that 'workgroup independence', arising from the segmented nature of the production process, 'was strong' and that 'Owners were generally tolerant of workgroup identity....Workgroup sub-employment lifted the burden of detailed management of production off the shoulders of the owner' (79). Such factors do much to explain why owners were often, at best, ambivalent about productive developments likely to undermine this system of employment and create demands on management beyond the scope of traditional organizational structures and of the resources of the family or partnership (79). Moreover, such practices were highly resistant to change, the 'complex nature' of the pottery industry being, as Lewis has observed of the Sheffield cutlery trades, 'deeply entrenched in the economic and social relations between capital and labour' (80). This resistance was strengthened by the prevalent individualism of owners and their failure to act in concert, the negotiation of new rates and practices on the introduction of machines being replicated many times over from firm to firm.

Clearly, this suspicion of, or even opposition to, the emergence of professional managers in the Potteries arose not simply out of practical issues but also had a cultural dimension. Moss hints at this without exploring it in depth, noting that 'managerial resources... provide both the central impetus to changes in resources and the principal impediment to such changes', imposing 'one limit on the rate at which the resources of the firm can be altered' (81). The culturally determined managerial constraints on resource responses in the Potteries were twofold.

Firstly, owner/managers were very often concerned to act in defence of their position, status and income, and possibly also that of their family, present and future, for whom the firm was, in some sense, held in trust. Most important was their independence, and if, as some

felt certain, machinery would eventually crush the small manufacturer then it clearly posed a threat to that independence (82). Owner/managers had to negotiate not only with the workforce during the process of mechanization but also with themselves over their priorities and values, mechanization involved not only the adoption of something new but also the abandonment of something old. Thus, a natural uncertainty over the new demands that mechanization might place on existing managerial resources was reinforced by a common antipathy to the encroachment of what was termed 'black-cloth uselessness' on the domain of proprietary capitalism (83). Moreover, many feared the 'degrading' impact of mechanization on the quality of the wares made in Staffordshire. To make good ware was as important as independence.

Decision-makers often felt that they also had to enter into a dialogue over, or at least acknowledge, the values and priorities of the wider industry. The Potteries industrial district was as much a network of trust, tradition, and assumed common understandings as it was one of transactions, exchange, and competition. It was in part from such forces that notions of a legitimate, and conversely an illegitimate, trade arose and were lent power. One aspect of such notions was seen in attitudes towards mechanization. These attitudes could range through pessimism, 'There are many articles of pottery which it is almost impossible to make except by the hand labour of the hollow-ware presser', through the quaint but largely unrealistic view that Josiah Wedgwood had 'elevated British pottery from a rude manufacture to a fine art', to clear dislike 'The future of English pottery rests with the artisan, for whilst machinery has done much, and will do more, there will always be pottery demanded that only the....workman can supply....and which must maintain the prestige of our manufacture' (84)

There was much in common in the attitudes of labour and employers towards mechanization in the Potteries. Workers too feared the loss of the status, independence, reputation, and skills of which they believed themselves, with considerable legitimacy, to be the custodians. It was these attributes that they sought to defend, as far as possible, from the effects of mechanization. Though fragmented along craft lines trade unions were strongest in the Potteries in those very areas, the forming of the wares dominated by skilled male workers,

over which it was most vital for employers to gain greater control if costs were to be reduced. It was vital to these unions that their craft status and high levels of pay be maintained in the face of new processes and technologies, so whilst they rarely mounted outright opposition to new modes of production introduced from the 1870s onwards they were concerned both to defend their ability to regulate aspects of work, its pace for instance, and to ensure that members were not disadvantaged by the type of plant with which they worked. Thus, the unevenness of mechanization in the industry provided a powerful spur for the unions to bargain aggressively in the interest of achieving parity for members working in different firms and under different conditions. For instance, it had been noted in 1880 that

There are large firms in the Potteries where there is every necessary mechanical appliance....Exactly the same wages are paid....to workmen on such a 'bank' as are paid to employees of other firms where there are not all the improvements of machinery introduced, and where all sorts of circumstances render it impossible for the men to do so large an amount of work. Thus one industrious man may get several shillings less than another industrious man. How can the inequality be remedied? (85)

Thus when owner/managers keen to retain the managerial structure outlined above met with determined trade unions they often acquiesced in ensuring the survival of century old practices. Management in the Potteries, just as in the Sheffield cutlery trades, 'saw the long standing tradition of piece rates and related deductions for power and rent as conducive to the resource base of the firm', a resource base which typically encouraged both industries to compete on the basis of quality and product range (86). Comment in the trade press frequently warned that many of the industry's strengths would be degraded by an 'excessive' mechanization, or that because of mechanization 'The inherited and acquired skill of the English operative, which used to be reckoned our main advantage over other potters now counts for nothing. The inevitableness of it should not be allowed to hide from us this important fact' (87).

There are strong parallels between the process of mechanization in the Staffordshire pottery industry and the Sheffield cutlery trade, in both the relationship between mechanization and

methods of payment was 'far from straight forward'. In both industries neither business structure or business culture did much to facilitate the resolution of these complexities (88). In particular management in both industries had to 'negotiate with diverse union groupings in a business environment which operated against collective action by employers', an issue explored further in chapter 8. The situation was further complicated by the 'wide commodity resource base of the firm' and the consequent multiplication of different piece rates (89). It is telling that in considering deductions for tools, machines, power etc. the Truck Acts Committee deliberately and explicitly discussed Sheffield and the Potteries in tandem because 'The origin and growth of these deductions' in those trades was 'an interesting chapter in industrial history' displaying remarkable similarities (90). Both industries were 'Originally....handicraft trades, practiced by the workers in their homes or in separate tenements....but the conditions of labour gradually changed' (91).

Most significantly, the gradual nature of development was stressed both by the Committee and the expert witnesses, Mr. Burton, Chairman of the Joint Committee of Pottery Manufacturers of Great Britain, noting that machinery 'has been very slowly introduced into our trade' (92). Burton's emphasis on the slow rate of mechanization in the pottery industry echoes Joyce's evaluation of the pace and timing of change as a key factor in the emergence of the different textile factory regimes of Lancashire and West Yorkshire. In West Yorkshire, as in the Potteries, a fragmented and small-scale business structure began to mechanize in the last quarter of the century, leading to 'a unique prolongation of the craft relationship between master and man'. 'Gradual mechanization and the intimate nature of local valley life' ensured that 'the modern factory inherited many of the characteristics of the social relations of small-scale and quasi-craft production' (93). A similar developmental pattern in the Potteries led to the retention of 'quasi-craft' practices and consciousness, inimical to a wholehearted acceptance of mechanization, amongst both workers and employers. As was suggested by the comparison of the British and German pottery industries of the late nineteenth century in the preceding chapter developmental pattern was a powerful determinant, alongside structure, of business behaviour (94).

It is now possible to look in more detail at the transition to machine work in the pottery industry and to suggest how it placed limits upon mechanization as a means of reducing cost constraints. Crucial to this issue is the concept of survival, introduced to the Committee of 1908 by J.A. Redgrave

Q.675. As you have explained the system, it is to a considerable extent....a survival? - It is a survival of the old system when a man took his gang of boys and girls and his candle to the potbank; he took a lump sum and paid his boys and girls and paid for his candle and everything. Now these things are provided for him, and he gets what the workmen themselves have accepted as the equivalent. (95)

The point was reiterated by Mr. Burton, but with more specific reference to the introduction of new methods and machines

The consequence (of slow mechanization) is that the method of payment, which has remained unchanged for about a century and a half, has been adjusted in this way, that whenever a fresh method or a fresh process, or even a fresh method of employment, has been introduced, instead of making it there and then a question of wages the manufacturers and operatives have agreed that the former should make a deduction for whatever new process or new method of work was introduced. (96)

The institutions of labour relations thus displayed considerable rigidity, and such was the power of this adjustment mechanism that even entirely new tasks were accorded a position within the old payment system. Some of the reasons for this were quite prosaic and were drawn out in the summation of the Committee

A revision of the piece-rates would be inconvenient. Many of the piece-rates did not lend themselves readily to alteration, dealing as they did with small fractional sums....The system of making fixed deductions accordingly sprang up as being the most convenient way by which to arrive at a fair equivalent for the facilities provided by the employer which the workman

had previously to provide for himself. (97)

Furthermore, it was felt that 'attempts to revise the rates might have involved disputes between master and man' (98). No doubt, as well as trying to avoid costly disputes, manufacturers also saw maintenance of the system of deductions as a means to shift some of the capital costs of mechanization onto labour. Indeed, a member of the Hanley Lodge of the National Order of Potters complained to the Staffordshire Knot newspaper that the workman was 'required to sacrifice a part of his wages to defray the cost of working machinery that was, and continued to be, the employers own property, instituted with the express object of cheapening production'. Even the trade press noted of the batting machine that 'the cost is so little that a very small percentage of the price paid for the work would have compensated for the price of the machine. But instead of adopting this reasonable course reductions have been made by some manufacturers....that will pay for the cost of the machine in a few months' (99). The process by which the deductions were arrived at also involved a tortuous degree of repetition, for as Whipp has stressed 'localised and informal bargaining was widespread and almost certainly the most common means of experiencing industrial relations for a potter' (100). As the trade press noted in 1900 that 'There is probably no industry in the world so concentrated, and yet so chaotic in respect to prices and customs', and such fragmentation probably acted to inhibit the resolution of this fundamental problem (101).

A concept central to both the evidence of Redgrave and the conclusions of the Truck Act Committee was equivalence, the ideal strived for in negotiating these difficult transitions was equilibrium. Piece rates in the pottery industry were paid according to 'counts' of ware termed either a dozen or a score, though a 'dozen' almost never comprised 12 units or a 'score' 20. Each of the very many different types of product made by most firms, and the different size ranges in which each product line was produced, was paid for according to a different count. As a further complication the piece rates were frequently, as we have already seen, not round, easily computed sums. These varied counts had grown up in an attempt to express in monetary terms the two primary characteristics of work in the

Potteries; skill and sheer physical labour, many tasks requiring both great dexterity and considerable muscular strength. Whilst it is clear that few branches of the potting industry were entirely revolutionized by mechanization in the nineteenth century it is also clear that both the skill levels and the labour demanded by many tasks were altered by mechanization, and yet both methods and levels of payment continued to be derived from assessments of the effort and skill involved that were long established, arrived at under different conditions and increasingly anachronistic. It was in this context that control over, and the realism of, the relationship between effort and reward under new modes of working, or with new technologies was likely to become blurred or lost to both employer and employee. Though a general judgement is difficult because of the fragmented nature of both payment and negotiating systems within the industry it is probable that in many cases not only the net wages which workers were able to earn but also the contribution of wages to individual unit costs were thus maintained after mechanization. J. Maddock stated quite explicitly at the arbitration of 1880 that he had 'introduced no new mode of working' through which he was 'able to make his goods at a less rate' (102). Moreover, this cancelling out of the gains to be made from mechanization in terms of unit costs could be compounded by the workforce underworking new technologies (103).

The survival of payments inappropriate in both the method by which they were calculated and the actual levels at which they were set was due largely to the gradual mechanization of the industry, continually postponing confrontation with the question of mechanization and its implications for the skill, status, effort and reward of workers. Moreover, the partial nature of mechanization was largely responsible for minimizing alterations to the composition of the workforce and limiting the realization of economies of scale.

Partial mechanization led to these outcomes in two ways. Firstly, because mechanization did not touch all departments within the firm equally it did little to re-order the sub-divided productive process in which the traditional, hierarchical workgroup consciousness of working potters was embedded. Though some of its content had changed the basic organization of work remained relatively unscathed, as did, at its centre, the gang, often based in family or kinship networks and with the skilled male at its head. Burton admitted in

1908 that sub-employment of family members was still 'very often the case to this day' (104). Furthermore, the reconstitution of the family in the workplace, in the terminology of Joyce and Whipp, had a central role to play in the inter-generational transmission of skill (105). Thus, a full displacement of skilled labour would necessitate the displacement of the family and this was not achieved (106). Reflection also makes it clear that the system of deductions examined above had sprung up for the very reason that the same operative was often in place before and after mechanization and demanding that a compensatory adjustment be made (107). Secondly, and rather more practically, mechanization in the pottery industry rarely did away with skill entirely. Mechanization did not turn operatives into mere machine minders or watchers. The persistence of skill helped to justify, and aided, the actions of the male craft worker in defence of his status against the interdependent threats of female labour and mechanization.

Certainly the substitution of female for male labour was feared and demonised by the craft unions, which generally excluded women from membership. The following is from 1885

On the first acquaintance of resistance on the part of the workman to any injustice offered him, he is told to get another situation, and then the crowning evil is wrought, the girl or woman who formerly was his attendant takes his place at the bench. This great fact cannot be denied...it is degrading our handicraft and its workers (108)

Manufacturers' motives in replacing male workers with women seemed clear 'There is a great outcry being made against the introduction of further female where hitherto males have been employed. The innovation is said to have been made in order to cheapen production' (109). Clearly innovative resource responses did not only involve mechanization, 'Such cheapening and degrading of labour' having 'generally the effect of improving the position of capital' (110). As well as being cheaper (journeywomen were typically paid the rate set for apprentices) the employment of female labour was likely to encourage both further mechanization and recomposition of the workforce by weakening the position of the male craft unions.

To what extent though was this ‘threat’ actually realized in the nineteenth century? Both the absolute and relative numbers of women working in the pottery industry did increase throughout the latter half of the century. Correlating various estimates of the female proportion of the workforce reveals broad agreement on the direction of the trend, these estimates are presented in Table 4:2

TABLE 4:1 FEMALE PROPORTION OF WORKFORCE

Date	%
1834	37 *
1851	36 *
1861	31 **
1864	38 *
1871	40 *
1881	38 **
1901	44 *
1907	41 ***

Sources:

* Hall, from 1834 Factory Inquiry Commission, 1864 Report of Inspectors of Factories and Censuses

** Sarsby, from Censuses

*** Census of Production in the UK: Final Report, 1907

The element of fluctuation underlying the gradual upward trend may well be realistic as women’s labour, generally occupying a more marginal position than that of men, was likely to show greater responsiveness to trade cycles. That the nineteenth century peak for female employment occurred in 1871 is congruent with this conclusion. Do these figures tell us anything particularly forceful about the composition of the workforce and its relationship to skill and mechanization though? Without more detailed information it cannot be safely concluded that these increasing numbers of female workers were taking hitherto more highly paid male positions or that they were more likely to be employed on new machines. Their effect on the resource mixes and cost constraints of the firm is at best uncertain and anecdotal evidence suggests that examples of such an effect were limited in number and scope. Sarsby, following Dupree, is surely right to suggest that ‘the increase in the

proportion of the labour force made up of women and girls in the 1870s....was related to the Factory Acts, which reduced the availability of child labour', the proportion of child labour falling from 17% to 12% between 1861 and 1871 (111). If this is true many female workers assisted male workers rather than replacing them. Analysis of employment data from the 1907 Census of Production also provides evidence of the failure of women to rise through the skill based hierarchy of the pottery firm, as might have occurred if women had begun to colonize important, previously male sections of the trade from the onset of mechanization in the 1870s. The majority of salaried workers in the pottery industry were shopfloor employees who, most often through long service and the status that was attached to skill, had risen to privileged, supervisory positions. In 1907 women represented a far smaller proportion of this upper echelon than they did of the overall workforce. The figures are 10% and 41% respectively (112). Sarsby goes so far as to suggest that it was not until the 1870s, the decade in which significant mechanization was first witnessed, that 'the stereotype husband and wife-attendant emerged', again suggesting that women entering the industry in the last quarter of the century typically did so as assistants only (113).

Thus, it is hard to conclude that the closing decades of the nineteenth saw the wholesale replacement of even parts of the male workforce with cheaper female labour aided by the latest machinery. Male craft workers had reason to overstate what they perceived to be a danger to their position in both the factory and the home, and Mr. Pinder had some justification in levelling the charge of hypocrisy at them at the time of the 1879 arbitration, noting that whilst the men now objected to the employment of women 'because it was too hard for them (they) had not always been so sentimental' (114).

That the partial mechanization of the pottery industry may have created new imbalances in the productive process, or at least that it failed to remove old ones, must also be considered in attempting to assess the nature and effectiveness of resource responses in the Potteries. Consul Schoenhof, discussing 'Improved Methods of Manufacture' in an article of 1886, observed that

The works show by their construction, in the additions, annexes etc. that they are of gradual growth. Even the machinery and working methods employed show the gradual growth. Improvements and new appliances, while rapidly introduced now, do not at once displace all old tools. While some remind us of the time of the Pharaohs, others in the same factory bear the stamp of the greatest era of invention and are models of ingenuity. One still sees in the same factory with steam and other appliances of the most improved patterns, boys turning the wheel for the potter. (115)

Whilst such a situation may in part be explained by the need, given the heterogeneous market served by the industry, to maintain a core of skilled workers it is also clearly not indicative of a fully evolved, interlocking mechanization. The advantages to be derived from an integrated approach to mechanization were made clear by the experience of the boot and shoe trades of Northamptonshire and Leicestershire in the same period. The pottery and boot and shoe trades shared many characteristics in the latter half of the nineteenth century; both displayed considerable geographical concentration, a preponderance of small-scale units, the late onset of mechanization, a highly skilled workforce and increasing foreign competition (116). However, in the 1890s the process of mechanization began quite suddenly to take a different course in each industry and it was at this point that the commercial fortunes of the two industries began to diverge, the boot and shoe industry mounting a far more effective fightback than the Potteries against an American industry that had previously been able to rely on the 'gap between British and American methods...of production' (117).

Until the 1880s gradual mechanization and the sub-division of processes made for an industrial environment in the boot and shoe trades unlikely, in the words of Church, to 'provide a stimulus to the adoption of American labor-saving machinery' (118).

Furthermore, there was an 'apparent failure on the part of many manufacturers to obtain the maximum benefit from their machinery-which in turns help to explain a reluctance to reform entire systems of manufacture' (119). Thus, as in the Potteries, partial and gradual mechanization led to, and was further compounded by, limited realization of any potential

benefits. As has been shown of the pottery industry this failure to obtain maximum benefit from mechanization was also, in part at least, a result of resistance displayed by the workforce. However, given the right conditions this resistance was far from insurmountable. Under pressure from outside stimuli supplied by the aggressive marketing and leasing policies of American manufacturers of shoe making machinery, fully interlocking mechanized systems made rapid progress in the British boot and shoe industry in the 1890s. This acceleration, based on 'an entire line of machinery', was predicated on not merely the mechanization of individual tasks but on the reorganization of the entire productive process and in the first years of the new century the industry began to regain its competitive position (120). No such comparable rapid and dramatic reorganization of the pottery industry occurred at this time with the result that the kind of works described by Schoenhof continued to exist and, perhaps, represent the norm.

William Boulton, the potters' engineer, may have commented in a catalogue of 1902 that

We cannot too strongly emphasize the importance of having a Plant correctly arranged for the production of the best possible goods...with the utmost economy of power, fuel, and labour. We supply plans of complete plants....These plans will be suited to the particular circumstances of the case as to site etc. and as a result of our long experience in erecting plants of all sizes, the purchaser of our machinery is assured a compact and, at the same time, economical plant. (121)

but, with most new entrants to the industry being very small in scale and established firms bearing heavy fixed costs in existing infrastructure the number of opportunities Boulton received for building fully and carefully planned works were relatively few.

A partially mechanized and sub-divided production process is not only limited in its scope for economies of scale but may well also experience problems of co-ordination likely to impose a range of additional demands and costs. Whilst, in the long or medium-term, these imbalances are likely to foster focusing effects (pointing to the need for further

mechanization), the immediate result is to supplement the capital costs of re-equipping. In some cases the mechanization of one part of the process, leading to attempts to achieve a higher level of production, could cause a rise in the wage bill of another department still dominated by hand labour.

Indeed, the whole question of the implications of mechanization for production levels was ambiguous and fraught with potential difficulties. One school of thought believed that there was a dangerous tendency to defray the costs and greater fixed capital intensity associated with mechanization by running machines at close to maximum regardless of fluctuations in demand and price. In essence, the argument asserted that machinery exacerbated an already problematical mismatch between demand and output. Thus, it was felt in 1892 that there 'is a large amount of unoccupied capital in the form of machinery lying idle, which is a constant temptation to its owners to take orders at the lowest possible profit-which often means none', or, more succinctly, manufacturers had incurred 'the additional cost of machinery for the sake of making less profit, or at least, making the same profits off a much greater turnover' (122).

As such opinions suggest it was also widely believed that mechanization tended to place a downward pressure on prices which, perhaps inevitably in the increasingly competitive environment the industry was experiencing at this time, was viewed as hazardous. Thus, the following view, from 1890, is of interest because it was the exception; 'A manufacturer who invests capital in expensive labour saving machinery....is surely justified in his effort to reap the full benefit of the greater facilities for which he has paid, by effecting larger sales at lower prices than can be charged by those who have not his facilities' (123). If such an attitude was at times mistrusted in the Potteries it was less for the soundness of its economics, than for its contradiction of a common understanding of the limits and responsibilities of commercial activity, derived from the business culture of the district. However, this problem was more often seen as being a matter of faults in demand rather than in supply and the responses made to it will be explored in the chapter 6, which focuses on marketing strategies.

This examination of resource responses in the Potteries in the late nineteenth century has shown that they were subject to some limitation, both in extent and in effectiveness. It must be stressed that this was in part a technical problem. However, this can serve only as a partial explanation for the limitations identified. Instead, we must also look to the structure of the industry, and to the existing resources and cultures of both individual firms and the wider industry when exploring this conclusion. Mechanization was seen to have unmistakable long-term implications for each of these aspects of the industry. In particular, the organizational principle on which most firms were arranged, that of personal or familial capitalism, a powerful determinant of the structure of the industry as a whole, was at 'risk' from extensive mechanization as skilled labour. Aided by the fact that mechanization of the industry was driven by a relatively weak technological logic, institutional rigidity often held sway, the ambiguous cost and productivity gains of mechanization feeding back into doubts about both the value and the wisdom of mechanization rooted in the quasi-craft culture of the district.

That many firms and entrepreneurs of this period did press forward with a range of resource responses should not, however, be lost sight of. The years 1870-1914 were the most significant yet in terms of the development of production technology in the pottery industry. This speaks well of the vigour and determination of the industrialists of late nineteenth century Staffordshire. If the business culture of these men, yet to be fully explored, lent to them a certain conservatism it also made them defiant in their defence of the industry against foreign competition. The trade press was right to note that despite depression 'wherever we travel in the pottery towns of North Staffordshire we observe alterations....of old factories, new one being built and machinery of the newest type being placed. Such actions speak louder than words, and seem to emphasize....that there is yet a great future before the British potter' (124). Moreover, the resource responses examined here led many firms to reconsider other aspects of their business strategy. Most obviously change in the way products were made might also require change in the way products were sold and in chapter 6 the marketing responses displayed by firms in the industry will be considered. However, in the next chapter constraint and response will be explored in detail in the context of a single firm, Mintons Ltd.

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3. Hanley Borough Rate Book, 1882.
4. Celoria, 1973, p.13.
5. Whipp, 1990, p.22.
6. The Pottery Gazette, May, 1883, p.451-2.
7. Truck Acts Committee: Final Report, Vol.3, 1908, p.38. Redgrave. was responding to a specific enquiry as to the ubiquity of power sources in potbanks, but there is no doubt that his reply can all be applied to all aspects of workplaces in the district. In August 1884 The Pottery Gazette commented that 'There are....manufacturers who have not the means or the courage to spend a little capital in making their factories workable....The adjoining factory is probably fitted up with every convenience', p.894.
8. The Pottery Gazette, July, 1886, p.813.
9. The Pottery Gazette, September, 1892, p.830 & August, 1892, p.718. Difficulties in accurately gauging the process of mechanization are not restricted to the pottery industry. Church has commented of the boot and shoe industry in the 1880s that though 'the pace of innovation was faster than it had been hitherto....we cannot establish this quantitatively and must rely on the observations of contemporary trade commentators'. Certainly the trade press of the ceramic industry carried much useful comment on mechanization. Church, R., 'The Effect of the American Export Invasion on the British Boot and Shoe Industry 1885-1914' Journal of Economic History, Vol.28, 1968, p.230.
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12. Lamb, A., 'The Press and Labours Reponse to Pottery-Making Machinery in the North Staffordshire Pottery Industry' Journal of Ceramic History, No.9, 1977, p.1.
13. Warbuton, W.H., 'The History of Trade Union Organisation in the North Staffordshire Pctteries', 1931, p.196. Truck Acts Committee: Final Report, 1908, Vol.4, p.275, Q.17170. In the same answer Burton added 'The pottery trade is an extraordinary one. It is very conservative....Every new county court judge who comes into the district says we are the biggest lunatics he ever saw'.
14. Advertisement, Keates and Ford's Annual Directory of the Potteries and Newcastle, 1867. The firm even made 'Hot water apparatus for Conservatories and Public Buildings'.
15. Stuart, (ed) 1985. Boulton was born in Newcastle-under-Lyme, Staffordshire in 1825 and died in 1900. He began business as an ironfounder in 1852 in partnership with Benjamin Brough, the firm moved to the premises in Navigation Road, Burslem that it still occupied in the 1980s in 1856. Between 1860 and 1897 Boulton took out 23 patents for machines connected with industry and was said to employ 150 hands in the mid-1880s. He was a Methodist, Liberal and a county magistrate. The Pottery Gazette, March, 1898, p.349
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20. The Illustrated London News: Staffordshire Potteries Special Supplement, 30 August, 1884, p.201.
21. Catalogue of William Boulton & Co., c.1902, H.B.R.L.
22. The Pottery Gazette, September, 1885, p.1074. However, voices criticizing the quality of engineering carried out for the pottery trade can also be found. One correspondent, signing himself W.F. of Stoke-on-Trent, observed that 'there is no valid reason why the designing and building of pottery machinery should not assume the guise of an exact science, in contradistinction to the clumsy, haphazard, and rule-of-thumb method now in vogue. An examination of the machinery fitted in factories of recent design reveals an unpardonable state of things.' The Pottery Gazette, August, 1896, p.616.
23. The Pottery Gazette, May, 1898, p.589.
24. Lamb, 1977, p.6.
25. Lloyd-Jones & Lewis, 1988, p.87. See also Lewis, 1989, chapter 4, in which Lewis argues of the cutlery trades, possessing a business structure similar in many ways to that of the Potteries, that 'the structure of the industry militated against the successful introduction of new techniques and work practices' p.85.
26. Lloyd-Jones and Lewis, 1988, p.87.
27. Moss, 1981.
28. Ibid., p.31-2.
29. Ibid., p.21 & p.50.
30. Elbaum, B., 'The Steel Industry Before World War 1' in Elbaum & Lazonick (eds) The Decline of the British Economy, 1987, p.62-3.
31. The Pottery Gazette, May, 1898, p.729 & August, 1884, p.904.
32. MMS 513, Annual Summary Book 1883-1891.
33. The Pottery Gazette, May, 1880, p.270.
34. Boulton & Co., c.1902.
35. Ibid.
36. Ibid.
37. Church, 1968, p.240.
38. The Pottery Gazette, May, 1885, p.559.
39. Moss, 1981, p.45 & p.56.
40. Ibid., p.49.
41. Ibid., p.49 & p.18.
42. Saul, S., 'Mechanical Engineering Industries, 1860-1914' in Supple, B. (ed), Essays in British Business History, 1977, p.46.
43. Mass, W. & Lazonick, W., 'The British Cotton Industry and International Competitive Advantage: The State of the Debates' Business History, Vol.32, No.4, 1990, p.13. Mass & Lazonick go on to say that this pattern of relationships between manufacturers and machines builders meant that 'As a result, equipment could be used for decades on end, with the engineering industry developing improvements to be used on existing machines with existing labour supplies'. Again the structural characteristics can be seen to be stretching the time-scale of the sub-innovatory process.
44. The Pottery Gazette, March, 1885, p.281.
45. Celoria, 1973, p.13.

46. The Pottery Gazette, May, 1883, p.451-2 & Thistlethwaite, F., 'The Atlantic Migration of the Pottery Industry' The Economic History Review, 2nd Series, Vol.XI, No.2, 1958, p.274.
47. Stratton, H., 'Technological Development of the American Pottery Industry' Journal of Political Economy, October, 1932, p.670.
48. Ibid., p.669.
49. Ibid., p.662.
50. Thistlethwaite, 1958, p.274.
51. Celoria, F., 'Reports of the US Consuls on the Staffordshire Potteries, 1883-1892' Journal of Ceramic History, No.7, 1974, p.48.
52. The Pottery Gazette, December, 1879, p.472 & June, 1880, p.341. In June 1896, however, The Pottery Gazette noted that 'In the matter of potters' machines England has much to learn. The ideal class of machine has probably not yet been invented in any country, but the work produced by the French machines could certainly not be turned out by any existing English machinery', p.445.
53. Stratton, 1932, p.666. In June 1897 the Pottery Gazette reported on a specific example of German technical advantage, saying of 'the new-fashioned lithographic' process that 'It must be confessed that the Germans and French got the start on us in this new invention, which may account in some degree for the falling off of our American trade last year, and the increase of German exports to the United States', p.773.
54. Stratton, 1932, p.673.
55. Ibid., p.673.
56. Ibid., p.673.
57. The Pottery Gazette, November, 1893, p.999.
58. The Pottery Gazette, December, 1879, p.472. Pinder calculated that the introduction of the jolly by his firm in 1874 had meant a 'very large rise of 6s 7d, or over 25%' for a plate maker'.
59. The Pottery Gazette, December, 1880, p.794.
60. The Pottery Gazette, January, 1882, p.57.
61. The Pottery Gazette, December, 1880, p.794.
62. The Pottery Gazette, February, 1888, p.227.
63. Lewis, 1989, p.88.
64. The Truck Acts Committee 1908: Final Report, Vol.1, p.42.
65. Ibid., p.39.
66. Census of Production in the United Kingdom 1907: Final Report, p.751.
67. The Pottery Gazette, May, 1885, p.559.
68. Whipp, 1990, p.4. Whipp places much emphasis on the notion of autonomy, asserting that there existed a 'constant interplay between the abilities of owners to define, demonstrate and control the nature of a job or task in detail', p.48. For instance, at the simple level of time keeping, Saint Monday was still widely observed in the Potteries in the late nineteenth century. His conclusion is that 'The pottery industry's growth does not fit' the model of 'the capitalist labour process involving the necessary degradation and homogenisation of labour', p.4 & p.22.
69. Lewis quotes Moore's observation, from 'Skill and the English Working Class', that 'technology is partly a product of skill...the prior existence of skilled workers determines the price of skill; technology adapts itself itself to the skill on offer.' Lewis,

- 1989, p.105. This idea has clear affinity with the links drawn by Penrose and Moss between strategy and existing resources and structures, to be introduced shortly and with Mass and Lazonick's exploration of the complementarities between technology and labour in Lancashire, already discussed.
70. The Pottery Gazette, May, 1899, p.552.
 71. Wilson, 1995, p.17. Penrose is quoted by Church, 1969, p.312. There are many interesting parallels between Kenricks and firms in the Potteries, these will receive further attention in the next chapter, a study of the well known firm of Minton's.
 72. Moss, 1981, p.52 & P.57.
 73. As chapter 2 of this work demonstrated the small-scale structure of the pottery industry was actually, perhaps against expectation, being accentuated during this period of increasing and accelerating mechanization.
 74. Census of Burslem, 1871 & Census of Production in the United Kingdom 1907: Final Report.
 75. Whipp, 1990, Whipp, R., 'Women and the Social Organization of Work in the Staffordshire Pottery Industry, 1900-1930' Midland History, Vol.XII 1987, Whipp, "The art of Good Management": Managerial control of Work in the British Pottery Industry' International Review of Social History, Vol.29, Pt.3, 1984. Dupree, M., Family Structure in the Staffordshire Potteries, 1840-1900, Unpublished D.Phil thesis Oxford 1981. The history of work in the Potteries is far more highly developed than it's business history.
 76. The Truck Acts Committee 1908: Final Report, Vol.3, p.275.
 77. Whipp, 1990, p.55.
 78. Payment by 'good from oven', whereby the central pieceworkers such as throwers, turners and pressers were only paid for their work if the wares they had shaped emerged as firsts from firing, a stage of the process over which they had no control, was a source of controversy in the industry throughout the century. In 1872 Minton's took the lead by abandoning 'good from oven' and instituted the self-explanatory 'good from hand'. At Martinmas of the same year, however, the employers announced a lockout and submitted the issue to arbitration, a tactic that worked in their favour, the policy being supported by the arbitrator T.H. Davenport. The issue was again the source of dispute in 1908 and it was not finally abolished until 1919. To celebrate the Union endowed flower beds at several local hospitals. Burchill & Ross, 1977, p.126 & p.168.
 79. Whipp, 1990, p.66. These practices were not strictly a form of subcontracting, but more 'a related form of labour management, the helper system...here skilled craftsmen hired their own helpers, supervised them and paid them out of their wages. Though they had more restricted managerial functions than subcontractors, these master craftsmen relieved the entrepreneur of many labour management functions, such as directly recruiting, supervising, disciplining, and paying large numbers of workers' Garside, W. & Gospel, H., 'Employers and Managers: Their Organizational Structure and Changing Industrial Strategies' in Wrigley, C., A History of British Industrial Relations, 1875-1914, 1982, p.102. However, Garside and Gospel's contention that 'The importance of subcontracting began to decline from the late nineteenth century onwards' under the influence of factors that included foreign competition and the subsequent need to introduce 'new machines and methods of working' requiring 'more direct forms of management' does not apply with great force to the Potteries, p.102.

80. Lewis, 1989, p.94.
81. Moss, 1981, p.21.
82. As an example, an article in The Pottery Gazette entitled 'Small Factories', argued that 'The most healthy form of work is what a man does on his own responsibility. The deposition of the handloom by steam power has lessened the number of masters and increased the number of servants in an inordinate degree; a few big heads and a multitude of weak "hands" are the order of the day. Monster mills and gigantic concerns threaten to dissipate the useful middle classes of comfortable and independent men'. Clearly, this author at least feared such a process had begun in the Potteries. November 1889, p.735.
83. The Pottery Gazette, March, 1893, p.251. The writer of this letter on 'Failures in the Pottery Trade' felt redundant layers of management 'must be nearly wiped of the face of the...industry'. A manufacturer examining 'The Condition of the Potting Trade' in 1888 had some interesting thought on the relationship between mechanization and the cost of management, noting that 'Many of the great houses of this trade have laid down a large amount of capital in alterations, machinery etc....The conditions resulting from these changes entail a considerable outlay in management expenses'. He continued by citing the example of the recent failure of the prestigious and long-established firm of Davenport's, commenting that 'their burdens in large capital and the great cost of management have killed them'. The Pottery Gazette, March, 1888, p.227.
84. The Pottery Gazette, August, 1892, p.718, July, 1883, p.639, and November 1886, p.6
85. The Pottery Gazette, January, 1880, p.35.
86. Lewis, 1989, p.109.
87. The Pottery Gazette, May, 1888, p.430 and March, 1896, p.211.
88. Lewis, 1989, p.92.
89. Lewis, 1989, p.99 & p.104.
90. Truck Acts Committee 1908: Final Report Vol.1, p.42.
91. *Ibid.*, p.42.
92. *Ibid.* Independent witnesses used very similar language to describe their trades. Compare the words of Mr Hobson, Honorary Secretary of the Sheffield Cutlery Manufacturers Association, to those of Burton. Hobson said that 'Upon the question of the history of the deductions it should be remembered that the cutlery trade was a handicraft trade originally. It was....practiced by the workmen in their own houses or at separate workshops, and not in factories. The factory system has grown up gradually at a later date', P.43
93. Joyce, P., Work, Society and Politics, 1982, p.166-7.
94. Of course structure and developmental pattern are closely interlinked and perhaps impossible to separate in terms of cause and effect.
95. Truck Acts Committee 1908: Final Report Vol.1, p.40.
96. *Ibid.*, p.42.
97. *Ibid.*, p.42.
98. *Ibid.*, p.42.
99. The Pottery Gazette, May, 1885, p.559.
100. Whipp, 1990, p.147.
101. The Pottery Gazette, May, 1890, p.557.
102. The Pottery Gazette, December, 1880, p.994.

103. At the arbitration of 1879 Mr Ridgway of Ridgway, Sparks and Ridgway explained that 'With regard to the introduction of machinery, the 'pugging' saved the man about an hour a day labour, which at five days a week 8d per hour, was 3s 4d per week. After deducting 6d per week for pugging there remained an advance of wages of 10%'. However, he went on to note that 'The average number of hours per week of a hollow ware presser were about 45, and this was shown by the fact that when the men were put on four days they did as much work as when they were supposed to be on full time'. The Pottery Gazette, December, 1879, p. 472. Such obstructionism or underworking has been noted in other industries. Church, commenting on a lock out in the boot and shoe industry in 1895 'which hinged on the adjustment of wages carried out on new machinery and by novel methods', noted that 'Hitherto, the Union's policy in this regard had been designed to nullify the economic advantages of machinery for the employers.' Church, 1968, p.239.
104. Truck Acts Committee 1908: Final Report Vol.1, p.42.
105. Joyce privileges the role of the family in generating acceptance of the regime of the cotton factory, 'The work situation was thus symmetrical with the shape of the family....The neighbourhood reflected and strengthened the new division of authority and status within the factory, just as in turn the family economy of work amplified the solidarity of place and community' 1982, p.56. In the quite different context in which work took place in the Potteries and despite the at least equal dedication of the community to one dominant industry, Whipp posits a rather more ambiguous position, vis a vis control in the workplace, for the potting family.
106. Examination of nineteenth century census returns for the Potteries makes the clear role of intergenerational family transmission of skill. The family living at 16 Velvet Street in Burslem in 1871 is a typical example. The 37 year old male head was a potter's presser, as was his 15 year old son, his next two sons, aged 13 and 11 were both assistants to pressers, quite probably their father and brother.
107. Proof of this, and evidence of just how difficult the transition to machine work could be for some, is furnished by the report of a court case that took place in 1883, described as an 'important decision affecting potters'. The case, Frederick Chesters vs W.H. Grindley of Tunstall, occurred because 'At the time the contract was entered into, all the work done by the flatpressers was by hand....the plaintiff worked for the defendants until Sep 20, 1882 when the latter substituted steam machinery for hand work and gave notice....that he would be required as a flat presser to work by steam machinery at certain rates. The plaintiff refused....whereupon the defendant refused to find him work by hand, having, in fact, none to give him'. Although the judge found in favour of the plaintiff he noted that 'although the prices for working by....machinery were less, the amount of work which could be done was greater and therefore it would have been better....to have accepted the change.' The Pottery Gazette, January, 1883, p.65.
108. The Pottery Gazette, May, 1885, p.559.
109. The Pottery Gazette, February, 1884, p.176.
110. The Pottery Gazette, June, 1883, p.539.
111. Sarsby, J., Missuses and Mouldrunners: An Oral History of Women Pottery Workers at Work and at Home, 1988, p.21. The mayor of Hanley gave evidence to the 1875 Royal Commission on the Working of the Factory and Workshop Act to the effect that 'because of the requirements of the Factory Act the supply of boys has been narrowed,

- and workmen had been obliged to get female labour'. Ibid., p.21.
112. Census of Production in the United Kingdom 1907: Final Report, p.745.
 113. Sarsby, 1988, p.21. There is at least one curious example of a new technique leading to expensive male labour replacing that of women. It was reported in 1880 that a new method of printing decoration 'is done by men, and from it accrues less profit (than from female hand painting). The call for plain printed goods is thus affecting the trade, and some firms will feel it very much' The Pottery Gazette, February, 1880, p.85.
 114. The Pottery Gazette, December, 1879, p.472.
 115. The Pottery Gazette, July, 1886, p.813.
 116. Church, 1968.
 117. Ibid., p.230.
 118. Ibid., p.232.
 119. Ibid., p.230.
 120. Ibid., p.243.
 121. Boulton & Co., 1902.
 122. The Pottery Gazette, March, 1896, p.211.
 123. The Pottery Gazette, March, 1890, p.233. One commentator was adamant in 1885 that the jolly had caused 'prices to be reduced in some cases beyond what is justified by the labour saving of the machine' The Pottery Gazette, August, 1885, p.939.
 124. The Pottery Gazette, October, 1893, p.899.

5: STRATEGY, STRUCTURE AND CULTURE: MINTONS LTD.

In this chapter a case study approach will enable the relationship between competitive constraints and firm structure, culture and strategy to be explored in more detail, with particular emphasis on the balance struck between resource, marketing, and other responses at the firm of Mintons in the last quarter of the nineteenth century. It will be shown that at Mintons business strategy followed on from existing organizational structures and the influence of the individuals who dominated them. This interpretation stands in contrast to Chandler's model, in which structure follows strategy, and sits more easily with Church's classic study of the Midlands hardware firm Kenricks. Thus, Church's conclusion that at Kenricks 'The existing structure and organization were taken as parameters rather than as variables' has much relevance also to the practice of personal capitalism at Mintons (1). Thus, this study will be informed by Casson's proposition that very often in assessing business strategy and performance 'It is the quality of the culture...which is crucial' (2).

By 1851, when international acclaim was accorded to its display of wares at the Great Exhibition, the firm of Mintons, founded in 1796 by Thomas Minton, was firmly established as one of the largest and most prestigious in the Potteries. The firm was in a position to exploit a 'secure' and 'old established market connection' and a carefully nurtured 'reputation monopoly' (3). However, the competitive environment in which Mintons operated was to change considerably in the final decades of the nineteenth century as patterns of demand changed and new competitors emerged, both at home and abroad. The firm's business records make it possible to examine the effectiveness of its strategies in those years and to demonstrate that both structure and strategy were marked by considerable stability, even as performance declined.

The emergence of a strong company culture, informed by the firm's history and its proprietorial and managerial structure, will be explored first and an assessment made of its influence over business strategy (4). The Minton company culture believed in the pursuit of excellence and valued the skills necessary to its capture. Strategy was concentrated on the production of wares of the very highest quality selling at premium prices in both domestic

and foreign markets (5). Herbert Minton, son of the founder and in control of the firm from 1836 until his death in 1858, has been described as having a 'driving ambition...to attain international recognition that the wares of Minton and Co. equalled those of the great continental ceramic houses' (6). This ambition may be said to have been realized and the firm acquired the highest of reputations. Colin Minton Campbell wrote to his mother describing the impact made by the firm at the Great exhibition with obvious pride.

The reputation of Mintons is second to none, only Sevres is a remote contender, and that is a government manufactory, grant aided annually to the tune of £12,000. Uncle (Herbert Minton) sought out and courted by all. He escorted the Royal Family and the Prince and Princess of Prussia through the building...and the Queen presented him to the Princess...as the manufacturer of that beautiful desert service. (7)

The firm had acquired this privileged position by developing an appropriate resource base, and in particular by employing many talented artist/designers and decorators. Registration as a limited liability company in 1883 confirmed the central position of design personnel and policy in the management and strategies of the firm (8). The company culture was similarly enlightened in its attitudes to the employment and working conditions of the entire workforce. The firm paid well, took the lead in sweeping away restrictive conditions of employment, earned the approval of the unions and avoided disputes (9). However, the workforce were expected to respond with loyalty and hard work, the family taking the lead in providing models of such virtues whilst also acting as a guarantee of the firm's good name in the market place. The emphasis on artistic excellence and the good treatment of the workforce had allowed the firm to move towards the development of a mixed resource base that combined skilled workers with some advanced mechanical techniques and lead to an output spanning both top-end and mid-range goods (10). As with many of its other features, experiments in productive techniques had been established as an element of company culture by the activities of the proprietors prior to 1850 (11).

However, any flexibility that appeared to have been built into the firm, allowing it to assimilate changes in both productive processes and the competitive environment, proved

limited and the trap of serving only a dwindling luxury market increasingly difficult to avoid (12). Mintons found that its strategies did not isolate it from deteriorating trading conditions in the last two decades of the century, which impacted as forcefully on Mintons as they did on any other firm in the Potteries. From 1887 until the end of the century the firm made continuous losses and in the early 1890s acute financial crisis made failure a very real possibility. The nature of these difficulties and their relationship to the firm's structure, culture, and strategies will all be explored. Does it follow, though, that Mintons was wrong in 'clinging, in a changing world, to methods and types of organization which had been formed in the days of her supremacy' (13)? Certainly it may be argued that the company culture, and the strategies which it informed, were in part a cause of the firm's problems but they also gave to the firm, its workforce and owners an impressive tenacity. Undoubtedly it was culture that made meaningful the 'irrational' behaviour of John Fitzherbert Campbell, favouring survival over profit maximization, without which collapse may well have occurred in 1894 (14). Thus, the influence of a company's history cannot be characterized simply as 'the restraining dead-hand of...past achievement', instead, as Lloyd-Jones and Lewis have demonstrated of personal capitalism in the Sheffield metal and metal-making trades of this period, the 'tenacity of this form of business organization suggests that it was not in its nature incapable of meeting the challenge of increased competition' (15).

However, as Schein argues, it is the basis that cultures have in such stability which lends them the power to make groups cohere whilst also making them resistant to change. It is evolutionary environmental change which determines which quality is ascendant, the consensus created by culture tending to be 'more dysfunctional in the later stages' of the growth of an organization. It will be shown that in the 1880s and 1890s Mintons perhaps lacked a leadership able to recognize that 'some of its assumptions were no longer valid' (16). Thus, in comparison with the activities of the firm's founder, the behaviour of Colin Minton Campbell and his son John Fitzherbert Campbell in the latter half of the century was more 'managerial' than 'entrepreneurial', seeking stability before growth (17). The third and fourth generations of the family failed Schein's test of leadership, in which 'leaders create and change cultures, while...managers live within them' (18). More generally, the example of Mintons provides evidence that the 'the transition from small to large, from entrepreneur-

dominated to manager-dominated enterprise' characteristic of this period required neither the separation of ownership and control or organizational development (19). Profitability returned in 1902 and, despite a run of losses in the 1930s, the firm remained an independent family business until it was bought by the Doulton group in 1968. Throughout the twentieth century company culture displayed the same stability. A recent history of design and production at Mintons over the last two hundred years, written by the company archivist and curator, begins by declaring that the firm has always pursued artistic excellence regardless of financial considerations (20).

Though Martin, Sitkin, and Boehm argue for a 'more complex and constrained portrayal of a founder's ability to impact the trajectory of a culture's evolution' the influence of founders cannot be simply dismissed (21). Thomas Minton, the firm's founder, may be viewed as a Schumpeterian entrepreneur, aggressive, growth oriented and with the 'drive and dynamismof the classical industrial revolution', and it was he and his son Herbert who did most to shape the structure and direction of the business (22). The firm's market orientation was based on his personal skills as an engraver. This background meant that Thomas Minton prioritized product over process, unlike the majority of manufacturers inculcated in the values of the workbench. Though he did not undertake a craft apprenticeship, as his father had done, it was commonly attested that Herbert too showed a keen appreciation of and involvement in design at the company (23). The firm's commercial development was forged through a series of partnerships, though the family was careful to retain control.

Born in Shrewsbury in 1765, Thomas Minton was apprenticed as an engraver at Thomas Turner's Caughley China Works at Broseley. He moved to the Potteries in 1789 and worked as an engraver and designer at Bridge House in Stoke-upon-Trent, during which time he produced a number of popular patterns for Josiah Spode I. According to John Thomas it was upon becoming a master engraver in 1793 that Minton decided to begin manufacture himself and 'like Spode....who appointed a practical potter....to manage (his) pottery. Minton the engraver made Joseph Poulson the manager of his new factory'. Poulson had in fact previously been a manager at Spodes (24). Clearly Thomas had quickly and effectively integrated himself into the highly localized business networks of the district. Poulson was

made a partner in 1797 and shortly after William Pownall, a Liverpool merchant, also became a partner, the firm trading as Minton, Poulson and Pownall until 1809, by which time Poulson had died and Pownall retired. Minton's sons Thomas Webb and Herbert entered the partnership in 1817, but Thomas Webb withdrew to enter the church in 1823 and Herbert also left, in 1828, and was not to return until his father's death in 1836 (25).

Herbert's first partner, John Boyle, was also from outside the family, but this partnership was short-lived and during its dissolution in 1841, which was attended by considerable difficulties, Herbert showed his capacity for aggressive business techniques. Boyle noted in September 1841 that the relationship between the two men had deteriorated 'to the extent of personal abuse'. Even Herbert's nephew and successor, Colin Minton-Campbell, was moved to complain in 1852 that 'our worthy uncle has been very difficult' (26). Immediately after ending the partnership with Boyle Herbert formed another, with his wife's nephew, Michael Daintry Hollins. His own nephew, Colin Minton-Campbell, entered the business in 1849. On Herbert's death in 1858 Minton-Campbell and Hollins continued in partnership together until 1863, though again dissolution was not easily achieved, disputes as to the right to produce certain wares not being settled until the early 1870s or without recourse to the law (27).

Thus, across a series of partnerships spanning some sixty years the Minton family had proved itself determined to maintain direct personal control of a firm that had grown very considerably during the same period. The firm had, like others in the district, begun life in a small way, but a strong commitment to personal capitalism had not acted as a constraint on growth and the Potteries had proved itself 'capable of producing large firms of national and international repute' (28). Given this history it is no surprise that the commitment of the Minton-Campbell family to the firm did not diminish in the second half of the century. This continuing commitment was demonstrated in both the governance and the managerial style of the firm. No extensive managerial hierarchy was developed. Instead there emerged a small body of managers drawn from outside the family, each with a broadly defined functional role. An Address from the entire workforce to Colin Minton Campbell of November 1876 was headed by the names of four managers; Leon Arnoux, Art Director, George Leason,

manager at Stoke, P. Holdcroft, manager at Walbrook, and W. Hawley, manager at Great Portland St. (29). Moreover, Leason, who was apprenticed to Mintons at the age of 13 before becoming journeyman and then foreman, is evidence of managerial dynasticism, his father having played an important role in the firm in the 1830s and 40s (30). Such forms of managerial recruitment and training were certain to produce managers fully imbued with the company culture.

Governance was equally tightly controlled. The incorporation of the firm as a private limited liability company, styled Mintons Ltd., in September 1883 did not weaken family control and is further confirmation of the conclusion of Payne and others that the adoption of corporate status by British firms 'initially did nothing to disrupt the familial nature of British business organization' (30). The shareholders were; Colin Minton-Campbell, Thomas William Minton, Herbert Minton, Herbert Minton-Robinson, L. Arnoux, G. Leason and Alfred Reynolds, the last two described respectively as potters' manager and manager of printing process (31). Very soon afterwards Leason was nominated a director of the company but the other managers did not follow him and the Board of Directors was composed almost entirely of family members. T.W. Minton, H. Minton and H. Minton-Robinson were all appointed as managing directors in September 1884, the latter, who had only entered the firm in the autumn of 1883, was made Company Secretary at the same time, a post he was to occupy until his death in 1923 (32).

This reliance upon family members to fill managerial posts and directorships, however, represented a potential rigidity. Given the absence of sons the succession of 1858 was handled smoothly, but the determination with which family control was maintained, both then and subsequently, offers evidence of the very great extent to which, as Casson suggests, the supply of entrepreneurs is 'organized with reference to cultural subgroups', in this case the family (33). In such patterns of recruitment the cultural affiliations of candidates (i.e. membership of the family) are at least as important as their attributes in determining selection and may lead to future problems. Bias can cause

considerable inertia...when a particular group begins to dominate a particular industry (or firm) favouritism in recruitment may make that group difficult to dislodge. This can be a serious difficulty if environmental change alters the role requirements, so that the culture is no longer appropriate given the different kinds of judgement now required. (34)

Similarly, Schein notes that ‘Once cultures exist they determine who will or will not be a leader’ (35). A strong company culture offers no guarantee that leaders able to recognize that some or all of the culture’s basic assumptions have become inappropriate will necessarily emerge.

Comparisons serve to highlight the conservative style of governance at Minton. Unlike the cases of Wills (1893), Pilkington (1894), or the re-registration of Courtaulds in 1904, where ‘growth was the spur’, neither the incorporation of Minton in 1883, or re-registration in 1892, took place in a context of ‘sustained growth and the need to secure its financing’. Indeed the latter event is best understood as an example of crisis management (36). Instead, incorporation, taking place against a background of a stable resource and product base, minimal investment, and static or declining sales, must be seen as a symbolic act of consolidation (37).

As has been suggested the firm’s resource base displayed the same stability as its structure and governance in the latter half of the century (See Appendix D Table 1 for details of process innovations originating within the company in the second half of the nineteenth century). At the time of the Great Exhibition Minton, Hollins and Co., as the firm was then known, had a workforce of a little over 1,500 and in 1882 stood at 1,565 (38). Correlating the composition of the workforce of 1882 with an inventory of the firm’s fixtures completed for January 1884 demonstrates that the limited growth that had occurred had been extensive rather than intensive. Fifty percent of the workforce of 1882 were either artists, designers or decorators, some of the most highly paid manual occupations in the industry. Potters, those responsible for forming the wares, where mechanization was to have the most impact in reducing the labour costs in the industry, formed just 17.5% of the workforce (39). The

firm's existing human resource balance meant that even full adoption of the most advanced techniques of the day would have had a limited impact on costs, but the evidence points to a cautious approach to mechanization within the firm.

The inventory of 1888 lists a total of 172 forming machines, comprised of a combination of whirlers, jiggers and throwing wheels. Jiggers, the most advanced of these machines, numbered just 26, or 15% of the total. Even more significantly a very similar number, 27, of all types of machine were recorded as being steam powered (40). Moreover, this inventory did not capture the firm at the bottom of an investment cycle for it was taken four years after an auditors report of 1879 had noted that 'The charge for Repairs and Additions to Buildings and Machinery for the past few years has been exceptionally heavy' (41). The accountants also noting that 'we are informed by Mr. Leason that the works are now in excellent order and that a large saving may be expected under this head' (42). Certainly significant investment in plant virtually ceased for some years after this. In no one year between 1883 and 1893 did expenditure on new machinery represent more than 1% of total expenditure, but neither did the anticipated savings materialize.

It will later be shown that an inability to control costs, particularly labour costs, was to dog the firm throughout the 1880s and 1890s and, as was true of also of structure and governance, Mintons resource base was subject to some rigidities at this time. This rigidity was located in the value placed on quality by the company culture and in the reciprocity of employer/employee relations. Thus, much like high class Sheffield cutlers such as George Wostenholm and Sons, Mintons found any move down-market difficult and unappealing (43). When external pressure began to mount from the mid-1870s the firm did not exploit any potential for diversification it may have possessed but retreated instead to a reliance on its core values. Thus, the firm's resource base, both physical and human, with its high degree of specificity to strategies congruent with the company culture, played a role in making the firm unable to respond to pressure for change. Mintons provides strong support for Penrose's assertion that 'the selection of relevant product-markets is necessarily determined by the "inherited" resources of the firm-the product services it already has' (44)

Thus, incorporation did not precipitate organizational change and nor was it significant in terms of investment. Furthermore it held few implications for strategy. Undoubtedly, the firm's resource base was appropriate to the focus on high quality wares. In addition it was believed that the firm's higher quality goods not only embodied the company culture but were also more profitable per unit. An internal memorandum of 1890, which attempted to assess and account for the differences in the firm's performance in the years 1884 and 1890, asserted that 'The greater the value of a piece, the more profit is put on'. However, though it had to be concluded that 'The demand for the richest decoration has....declined', pride was still expressed in the fact that 'The company still produces patterns equally as rich and good as in 1884 and still supplies as large or larger a proportion of (i.e. the great bulk of) the highest priced ware now sold in the trade' (45).

In other words strategy had not changed between 1884 and 1890 in response to clear changes in demand. Moreover, the memorandum did not suggest that change should now be considered. Instead an estimated minimum profit of £3,864 was forecast for 1891 (46). However the company's accountants, Deloitte, Dever, Griffith and Co., had been expressing doubts about the firm's market orientation and recommending increased levels of production since the late 1870s. Their report on the accounts of the year to August 1877 noted that

Assuming that no ware is made which does not (make) a profit, it is clearly desirable that (to fully occupy all the machinery and plant) as much business as possible should be done, especially in the wares which are believed to produce the best results (47)

In 1878, which had 'to bear the double disadvantage of increased expenditure and decreased production', the firm was again urged to consider

the question as to which class of ware it is most profitable to manufacture. With reference to this latter question we must point out that the statistics in our possession relating to the output from the different ovens, shew an increased production of china and a decrease in the quantity of earthenware manufactured and this may in some measure attribute

to the unsatisfactory result. (48)

Specific advice went unheeded. The ‘comparatively favourable’ result achieved in 1877 the accountants felt ‘doubtless arises from the decrease in the sale being entirely in the Gilt China-probably the least profitable part of your manufacture’; but the proportion of sales of Gilt China, particularly costly in materials, to all sales rose from 29% in 1883 to 32% in 1893 and consistently represented around 10% more of the total value of sales made than the next most significant product type. In the same ten year period the production of earthenware lines such as Stoneware, Majolica and Cream Coloured, which the accountants had recommended be expanded, was either discontinued or shrank as a percentage of total sales (49). These trends did not go unnoticed. In 1894, when a loss had been recorded for the previous eight years, the accountant’s concern was again focussed on the balance of wares made by the firm.

The decrease in the sale of expensive articles included under the head of “China” may probably have been expected owing to the bad times but that Earthenware etc.should have become reduced to their, at present, insignificant figure is certainly alarming (50)

Clearly, it was felt that sales in luxury markets were bound to suffer in the prevailing market conditions, but the alarm over falling earthenware sales was particularly heightened because ‘notwithstanding the reputation of the firm...competitors must have found means of securing a large amount of business which based on the importance of the works should undoubtedly’ have been retained by the firm (51). Not only was the focus on quality wares proving insufficiently profitable but it was also beginning to fail as a marketing strategy. The power of the firm’s ‘reputation monopoly’ was weakening as the competitive environment changed and, as will be shown, customers, both at home and abroad, began to complain of a tangible deterioration in standards of both manufacture and service.

These shifts in the balance of the types, values, and profitability of wares made by the firm took place against the background of an overall decline in sales, static and rising costs, and, less consistently, falling prices (See Appendix D Table 2 for details of sales 1876-1879 and

1884-1893). All of these trends first emerged in the mid to late 1870s, though the company was still making profits at that time. Deloitte, Dever, Griffith and Co. were assiduous in providing detailed annual audits of the accounts, which were generally noted to be in good order, and in warning of the consequences of what they found. Indeed, though the performance of the firm was deteriorating, Mintons may not be included in the judgment that ‘Ignorance seems to have been a common failing in the direction of British enterprises’. The directors did not make decisions ‘without adequate information or even without any awareness that such information was desirable’ (52). In addition to the annual audit, the management also had recourse, from 1883, to an Annual Summary Book which carried detailed information on all aspects of the firm’s finances. In particular the relationship between each element of expenditure and the value of wares manufactured and sold was calculated with considerable detail. More occasional comparative exercises, such as the memorandum of 1890 already referred to, were also carried out with the aim of identifying specific problems. Only once, in a letter of 1885, did the accountants make reference to serious ‘accounting difficulties between Stoke and Walbrook (the London showroom) due to lack of co-ordination’ (53). What did these flows of information show?

Deloitte, Dever, Griffith and Co. reported that in 1877 there had been a ‘great falling off in sales as compared with the previous years’ and, although costs had been managed well, it also appeared ‘that the ware sold did not realize such good prices’, as was demonstrated by the following figures (54).

TABLE 5:1 SALES, COSTS AND PROFITS, 1876-1877

	Net Sales	Cost of Goods Sold	Gross Profit	% on Cost of Goods
1876	£12,569	£10,598	£1971	18.5
1877	£9,543	£8,791	£752	8.5

Source: MMS. 501 Report on Accounts to 11 August 1877.

Though, in the same year, net profit on the wares manufactured showed a ‘satisfactory advance’ (to 8.2% from 7.4% in 1876) this report concluded with a negative assessment of the results in relation to the firm’s reputation; ‘we do not consider that the result is

commensurate with the large amount of business done and the high position of the firm' (55). If falling sales had been accompanied by reduced costs in 1877 the same was not true in the following year. A detailed analysis of expenditure showed under almost every head an increase as a percentage on the value of the ware manufactured (See Appendix D, Table. 3 for details of these figures). The result was a reduction in profits of £8,411. The auditors were frank in their judgement, concluding that the increase in expenditure was 'entirely unwarranted as, with the exception of the standing charges, the cost should be in proportion to the production' (56). The figures for 1878 were in fact worse than they first seemed, for they had been buoyed up by a 'considerable....reduction of stock' which had masked the fact that behind falling sales lay a reduced output, something made obvious the following year.

TABLE 5:2: COMPARISON OF SALES AND VALUE OF WARE MANUFACTURED, 1878-1879

	Sales	Value of Ware Manufactured
1878	£123,935	£116,998
1879	£115,753	£115,607
Reduction	£7,182	£1,390

Source: MMS. 503 Report on Accounts to 11 August 1879.

Though the reduction in output was regarded as serious, a lost opportunity for profit-making, criticism was again focussed largely on costs in 1879. Though down on 1878 they were still 4% up on 1876-7, when a larger trade had been done, and despite the fact that

nearly every article of consumption is costing less than in 1876-7 and the price of wages is also lower, under these circumstances instead of an increase of 4% we should look for a reduction, and we therefore trust to find that a serious improvement in this respect will be perceptible in the current year (57)

In 1880, though output rose in value, sales again fell and costs continued to show real rather than merely relative rises. Some of these increases, such as the extra £700 spent on bone

when the sales of the china into which bone went had fallen by £3,750, the auditors were simply ‘at a loss to understand’ (58).

By the early 1890s near continuous falls in sales for a decade and a half meant that, irrespective of expenditure, it had become ‘quite impossible for the sales to stand the fixed charges and show anything but a loss....it seems clear to us that nothing but loss can result unless means are found to materially increase the sales’ (59). Falling sales were increasingly exacerbated by a heavy burden of bad debts and extended credit given to customers, against which the firm was warned as ‘providing them with working capital, which you can ill afford to do, and which causes you to be deeper in debt at the bank than you otherwise would be, at a considerable cost for interest’ (60).

What were the costs involved in the manufacture of the firm’s wares and in what way did they change in the last two decades of the century? Statements A and B, appended to the report on the accounts of 1894 and summarizing net sales and the percentage of each expense on ware manufactured, form a useful introduction to this question, their contents are collated and presented in Table. 5:3

Most striking is the very heavy contribution of wages and salaries to costs and the strong correlation between rises in both this figure and of that for materials and either reduced profit or actual loss. These figures were not exceptional, a Summary of Wages and Salaries (which excluded directors remuneration) shows that for the ten years from 1884 to 1893 the percentage of wages on wares manufactured never fell below 46% and rose as high as 55% in 1885, a year in which profits fell by £9,000 in comparison with 1884 (61). Behind these relative increases wages and salaries actually showed a steady reduction in real terms. Thus, wages and salaries were reduced by £12,220 between 1884 and 1890 (from £61,234 to £48,293) but because the tendency, first noticed in the 1870s, for wages and other expenses to fall less rapidly than either sales or output had persisted these reductions represented a relative rise of 1.4% (62). Though the accounting systems in place at Mintons do not allow unit wage costs to be calculated the conclusion must be that they were rising at this time.

Furthermore, because few, if any, of the other costs of manufacture showed significant relative decreases it was profits that were inexorably squeezed.

TABLE. 5:3: COMPARATIVE STATEMENT OF % OF EXPENSES ON WARE MANUFACTURED AND SUMMARY OF SALES

	1884	1892	1893	1894
Material	26.3	33.3	22.5	31.3
Wages, Salaries*	47.8	52.1	49.9	53.2
Models, Moulds				
Engravings	3.1	4.1	3.8	4.3
Rent	3.8	1.7	1.6	2.0
General Expences**	4.0	6.0	6.0	7.0
Discounts,				
Allowances etc.	5.4	5.0	5.1	4.9
Bad Debts	0.2	0.3	0.2	1.9
Value of Ware				
Manufactured	£132,290	£88,775	£90,775	£75,148
Net Sales	£132,972	£87,824	£97,273	£75,367
Profit or Loss				
at Stoke***	£13,801 P	£1,822 L	£810 P	£3,529 L

* Includes directors remuneration

** Includes travelling, commission, taxes, insurance etc.

*** Does not therefore include cost of conducting Stoke business at Walbrook. The firm made a net profit of £11,000 in 1884 and a loss in the region of £1,000 in 1893 after taking into account the results from Walbrook.

Source: MMS. 246 Report of Accounts to 11 August 1894

The heavy burden placed on the firm by labour costs must be traced back to the firm's resource base, already explored, and thus to the focus on the production of high quality goods, i.e. quality remained a 'core' value of the company. In turn the failure to reduce costs is testament to the commitment of the firm to that focus as both a strategy and as a central plank in the company culture. High labour costs were not the only penalty for that commitment however. Design materials and designs sourced outside the company, not withstanding the firm's own very strong art department, all proved costly. In the 1880s

expenditure on models, moulds, engravings, copper plate and designs, was consistently in the region of 8 or 9 times greater than that spent on new machinery (63). Typical of these costs was that arising from the agreement made with sculptor Adolphe Megret in July 1884 'relating to the copyright of his statue "Aurora", Minton's production of the same, their payment to him of a royalty of 7.5%'; whilst an extension to J.L. Hughes patent for ornamenting china, first purchased by the firm in 1863, was obtained in 1877 because Minton's were able to prove that the technique was 'valuable but not yet remunerative' (64).

The prestigious London showrooms at Walbrook also proved to be a near constant drain on the firm. Again these problems, some of which undoubtedly resulted from poor co-ordination and faulty pricing policy, first began to emerge in the late 1870s. Thus, in 1878, it was noticed that much of the increased cost of conducting Stoke business in London was 'due to the loss resulting from an increased stock of patterns etc., these being charged to Walbrook at full prices but taken into stock there at a discount of 50%'. At the same time 'The stock and debts (are) very heavy, the former representing more than a year's net sales and the latter about six months sales' (65). Walbrook was responsible for nearly £1,300 of the £6,000 loss made in 1894; 'the increased cost of conducting Stoke business in London' that year 'owing to the absence during the past year of sales being effected there on which extra profit could be made, the ordinary sales realizing little more than the price charged for the ware at Stoke' (66). Nonetheless, it was felt that the showrooms had to be maintained as the public face of a company with an international reputation.

Generally, even though the firm's primary response to deteriorating performance was not to change broad strategy but to trim costs wherever possible, expenditure on all forms of marketing tended to hold up throughout this period. Though Deloitte, Dever, Griffith and Co. had noticed in 1879 that there had been 'in the past two years....a considerable reduction in the cost of travelling and travellers commission' spending under these heads actually increased both absolutely and relative to production in the 1880s (67). Expenditure on travellers stood at £2,097 in 1884 and grew steadily to £2915 in 1890, an increase of 1.22% on the value of the ware made. Indeed, in 1898, Deloitte, Dever, Griffith & Co. thought travellers' expenses 'worthy of your attention with a view to (their) reduction....without

sacrificing the efficiency of representation' (68). Expenditure on advertising, pattern sheets, and photography also held up fairly well until it fell to significantly lower levels in 1899 before beginning to climb again after the turn of the century (69).

Given the commitment of the firm to its established market position maintaining expenditure in these areas was undoubtedly necessary. Indeed, Kono has argued that 'strategies which aim to increase short-term profits but which undermine the corporate culture of the company, will impede the creation and implementation of successful strategies in the next period'. In particular a negative strategy which attacks core capability 'may cut costs but it may damage the corporate culture' (70). However, a refusal to cut cost did not guarantee the effectiveness of the firm's marketing strategies.

It has already been shown that sales in the 1880s and 1890s were both less remunerative and less frequent. If they were less remunerative because costs fell insufficiently then they were less numerous for a variety of reasons. Some, such as a decline in the quality of the wares and service provided, may be traced to the firm, others to the market. The report of 1902 made by Currall and Strasser, the firm's German agents, provides a wealth of information on the difficulties encountered in some Continental markets, whilst also suggesting the development of an agency system gave Minton's flows of information from the market at least as adequate as those concerning internal finances (71). It is also difficult to implicate what seems to have been an energetic agency in the firm's falling sales. Visits were made to numerous established customers in a total of 30 cities and towns in 1902, 22 in Germany, 5 in Holland and Belgium, 2 in Switzerland and 1 in Hungary. Moreover, a further 17 cities in Germany, Switzerland, Poland and Czechoslovakia were visited 'experimentally but without result', and an exhibition held in Berlin was attended by many of the dealers visited during the year and by others from Moscow, Riga, Stockholm and Copenhagen (72).

Currall and Strasser's report concluded with some general remarks, which form a useful introduction to developments in these markets. Almost all indicators were unfavourable. Currall and Strasser began by noting that the 'trade becomes increasingly difficult every year', not only for Minton's but for all participants. These difficulties were rooted in

increased competition 'owing to the growth of native industries and to the cheapness of French china and English semi-porcelain'. Though the agents believed that 'Nothing but your general excellence of design enables us to do any business' and that the 'new "Secessionist" ware (is) greatly in the prevailing taste and....capable of adding very appreciably to the total returns', it was still clear that reputation alone would not completely insulate the firm from the effects of cheaper competitors (73). The segmentation of markets by quality stressed by Porter was clearly relatively weak if even a firm such as Mintons could be displaced by cheaper goods of lower quality (74). This problem was worse in some markets than in others. Currall and Strasser found for example that 'generally our class of ware is a bit too high in price for Belgium, which market is very much overdone by the lower grade earthenware and semi-porcelain' (75). These changes in the markets favouring makers of large quantities of cheaper wares were further exacerbated by the behaviour of some dealers in deliberately excluding English goods. Mintons was, however, also failing itself. In addition to complaints from customers the agents themselves noted that wares 'ought to be more systematically modelled so as to have greater uniformity of shape', and were forced to complain, with reference to the valuable "Secessionist" range, that 'we had no drawings or illustration of this ware during the whole of our journeys right up to September' (76)

These problems led directly to orders being lost. In Berlin, for example, though A. Westheim 'favours English goods' P. Raddatz & Co. were 'falling off greatly in their purchases from England, pushing German makers more and more, very difficult to get them to take up new patterns', whilst in Vienna Haas & Czisek had 'Given up English goods altogetner being sole depot for certain Austrian and German makers'. In Stuttgart the firm of Haersklin, previously a customer for Mintons, was found to have joined a group, including others in Frankfort, Mannheim and Nurnberg, forming a 'syndicate holding the monopoly in their respective towns for "Hutschneider A Earthenware"-to the practical exclusion of English-business therefore....limited to matching'. In Budapest it proved 'impossible to get orders....sale of English goods declining' in general. The spread of exclusive agency arrangements was not confined to Continental manufacturers. In Hamburg one firm had begun to confine its 'business in English goods as far as possible to Wedgwood (for whom

Mr. Schmidts nephew travels) and to Copelands for whom they act practically as agents'. whilst in Vienna it was 'very difficult to induce' A. Denk 'to take up new dinner ware-he being particularly bound to Brown-Westheads' (77).

If the concentration upon the top end of the market was beginning to restrict sales then it also exposed the firm to greater criticism when standards were not maintained and encouraged the firm to persist with unrewarding customers thought to be prestigious in some way. Thus, C.F. Otto Muller of Carlsruhe, though he was 'faddy and cannot buy largely', was carefully solicited because he 'Numbers the Grand Ducal Court of Baden amongst his customers (and) is therefore valuable to us'. More importantly though, Muller was just one customer whose orders were very slow in arriving, making him 'Well displeased as customer'. One firm in Hanover was 'much incensed at late delivery....would buy nothing at present....ware not having given satisfaction', whilst late delivery meant that another in Berlin missed the 'Xmas season entirely and the spring season in part. Customer was greatly incensed at this....which had the effect of stopping all further purchases for the year'. Clearly prompt delivery was crucial in a fashion industry marked by considerable seasonality. Even C. Hansch & Co., also of Berlin and 'one of the most satisfactory of the Continental customers....always fairly open to take up new' patterns, considered himself 'not at all well treated by yourselves in matter of deliveries' (78). It must have been well known to Mintons that prompt delivery was of key importance to their business and it is difficult to attribute this problem to anything other than managerial failings.

Even more serious for a firm relying on reputation as the mainstay of its marketing strategy was the 'great dissatisfaction with quality of goods recently supplied' expressed by some customers. Though not expressed in reduced costs, fifteen years of trading at a loss does seem to have had an adverse impact on the firm's resource base, rendering it less appropriate to the strategy of concentration on high quality goods. Most vociferous of these complainants was P.A.W. Philippona of the Hague, who wrote to Mr. Currall in November 1902 after an order went unfilled. The agents felt the letter worth quoting at length in their report to Mintons.

Mintons is going down, their ware is second rate lately.
I had much annoyance with their goods. Two large sets had
to be returned for bad gold and those new in line are
worse; not only the gold is bad but the glaze is rough.
The new patterns....brought were very nice....and I could
not resist buying them. But now I get word they cannot be
supplied as not sufficient has been sold to pay the
engraving expenses. This is a bad sign. (79)

Such complaints were indeed a bad sign, but they also point to the difficulties in co-ordinating supply and demand inherent in industries making specialist and fashion items and in which orders precede manufacture, difficulties largely avoided by makers of mass-produced, standardized goods. Such problems were common to the whole of the pottery industry but were particularly pressing for a firm such as Mintons for whom expensive materials and high quality workmanship represented both greater added value when sales were realized and greater loss when stock went unsold. Inevitably, the firm could not afford to produce the full range of goods it sought to offer and thus incurred further costs. Not only was goodwill lost but direct costs were also incurred, though a copperplate engraving had not been made in this case the original design had been. Minton's accountants had long counselled against both holding excessive stock and late delivery but solutions were not obvious. In the auditors report of 1877 for example both an increase in stock representing a 'possible loss by....change of fashion' and 'the length of time which very often elapses between the receipt of orders and the delivery of goods', through which 'the firm must suffer', were criticized. Often though the two aims of reducing stock and prompt delivery simply conflicted (80).

The sword was two edged. When stocks fell too low or production could not precede orders, such orders as were received were either filled late or not at all, but excessive stock showed a strong tendency to depreciate in value through a change in fashion. Furthermore, holding stocks of finished wares complicated pricing policy and auditing. In a letter of September 1889 Deloitte, Dever, Griffith & Co. warned Peter Holdcroft, manager at the Walbrook showrooms, where stock tended to accumulate in bad years, that

Profits are made on the sale of goods, not on the manufacture....if the present increase in selling prices results from, and represents any increased cost of production in the past year, it would of course be right to value the stock accordingly, otherwise we should say that the only sound method would be to money the stocks at old prices, leaving any benefit resulting from your prices being raised to be shown when the goods are sold. The result of increasing the price of the stock when you increase the price to your customers....is to show a fictitious profit and fictitious profits should not be shown. (81)

This examination of production costs at Mintons and of the changing market conditions that the firm faced has clearly demonstrated that a strategy of quality production was expensive, demanding of both management and workforce alike, and increasingly ineffective. What, then, were the responses made by the firm to its problems in this period?

As has already been suggested the firm's response may be broadly characterized as an attempt to hold its course in an attempt to ride out the storm, with costs being reduced or at least contained wherever possible. However, the maintenance of a company culture focussed on the production of fine and expensive wares constrained attempts to reduce costs, and the savings that could be made were necessarily piecemeal and ineffective in turning the firm around. For example, the memoranda of 1890 looked principally to a projected saving of £258 on Babst's travelling expenses and commission in 1891 and of £900 on managers salaries in 1892, realized by cutting Thomas Minton's salary by £300 and by the retirement of Peter Holdcroft, for salvation (82). Similarly the Report of the Directors of August 1892 noted a reduction of £675 in costs 'consequent on Mr. Arnoux's retirement and Mr. Minton's removal to London' and hoped that the year '1892-3 will feel the benefit of these and other reductions more fully' (83). Furthermore, directors salaries, which had risen from £2,050 in 1884 to £2,200 in 1891 fell steadily throughout the 1890s and by 1899 stood at only £700 (84). Eventually though it was to become obvious that such savings were inadequate and that a more thorough going response was needed if the firm was to survive.

The principal response displayed by Mintons to the difficulties experienced in the 1880s and 1890s was not market reorientation, or a restructuring of the firm's resource base, but a purely financial restructuring, intended to ease the most pressing burdens. This reconstruction, undertaken in 1892, was combined with financial sacrifice by the owners and directors. It is clear from the actions taken in 1892 and subsequently that both governance and managerial style were, if possible, to be spared change.

Though Colin Minton Campbell had confided to his future wife as early as 1852 that he was 'almost prepared to leave this place' if things did not improve, the previous year not having been 'a good one financially', the third quarter of the century was generally profitable for the company and, as we have seen, problems did not become acute until the late 1880s (85). This was first explicitly recognized in 1890, initially in the memoranda written by Thomas Minton already referred to, and then in a note written by John Fitzherbert Campbell on the fifth of September, giving notice of a 'special general meeting to be called after the ordinary general meeting to consider the financial problems of the firm and pass a resolution thereon' (86).

That meeting, held in January 1891, led to an agreement between Campbell and Mintons Ltd. whereby Campbell, as principal shareholder in the firm and owner of the premises that it occupied, was to accept, firstly a reduction in the rent from £5,000 to £3,000 for the year 1890-91 and, secondly, 4% interest on debentures 25-48 and 5% on debentures 49-80. The agreement cited a lease of 30 year, dated 1 January 1884, between Colin Minton Campbell and the Mintons Ltd., and the issue on the 2 of January 1884 of debentures to the amount of £40,000, numbered 1 to 80, to fall due at 12 August 1893 and bearing interest at 6% p.a. (87).

Thus, these rather more substantial savings on rent and interest due on debentures joined the ad-hoc and piecemeal savings already outlined. However, these remedies were still inadequate and in early 1892 a memoranda 'embodying terms for the reconstruction of Mintons Ltd.' was prepared and presented to the directors for their consideration. The memoranda proposed that the company be liquidated and a new one, bearing the same name,

formed to purchase its business, property and assets and to take over all responsibilities. The new company was to have a nominal share value of £99,000 divided into 13,332 shares of £7-10. 11,300 of these shares were to be fully paid up and the rest remain unissued.

Crucially the new shares were to be ‘distributed....among the members of the old company in proportion to their holdings in that company’ (88). The reconstruction explicitly sought to preserve the governance of the firm, and without injecting new capital. It is also clear that re-registration in 1892 did not take place in a context of ‘sustained growth and the need to secure its financing’. The re-registration of Samuel Courtauld and Co. in 1904 may, as at Mintons, have ‘followed a decade of difficulties....a decline....in sales and a writing-down of capital’ but was also ‘inspired by the decision to move into artificial silk’, but no such innovation or diversification may be associated with re-registration at Mintons (89).

Instead, the intended ‘practical effect’ of the restructuring was ‘that the capital of the old Company would be reduced by 25% and will stand at the formation of the new company at £84,750’. Moreover, the memoranda shows that Campbell was willing to further forego his returns from the company by; a) accepting the debentures of the new Company for £40,000 in substitution for the existing debentures of that amount in the old Company and to reduce the interest on the new debentures from 6% to 4%, b) by again reducing the rent charged against the old Company from £3,000 p.a. to £1,500 p.a. and c) by wiping out all arrears of rent and interest owing to him on the 1 February 1892, amounting to around £9,000. Whilst it was anticipated that none of the firm’s creditors would raise any difficulties Campbell also agreed that if the bank demanded securities he would deposit with them debentures equivalent in value to the overdraft (90). These proposals were quickly agreed and put into effect, the Articles of Association of the reformed Mintons Ltd. being issued on 29 April 1892.

The Report of the Directors of August 1892 expressed the rationale behind reconstruction and its intended outcomes. Though acknowledging that the firm had made a loss of £1,823 in 1892 (Thomas Minton’s memoranda of 1890 had estimated minimum a profit of £3,864 for 1892) the report clung to the hope that the changes made had been far reaching enough to save the firm but that their effects had not yet been felt. Nonetheless, it was admitted that

The large reduction in the value of the ware manufactured and sold, without an apparent adequate decrease in the consumption of materials, fully accounts for the this adverse balance, notwithstanding the reduction in the expenses of the Company which have resulted from its reconstruction and other causes....consequently the reductions which have already taken place have not sufficed to show a balance to the credit of the Profit and Loss account. (91)

Besides the savings arising from Arnoux's retirement, already referred to, the reductions were 'substantially' rent reduced by £1,500 and debenture interest by £400. The report also contained a balance sheet laying out how the reduction of capital by £28,625 resulting from reconstruction had been utilized. This information is summarized in Table 5:4

TABLE 5:4: BALANCE SHEET. REPORT OF THE DIRECTORS, 1892

Extinction of adverse balance	£23,817-3-6
Extinction of New Buildings Account	£1,768-19-7
Reduction in prices of stock of:	
Ornamental Goods	£2,563-16-11
Walbrook fixtures	£100
Retirement of Mr. Holdcroft	£375
Total	£28,623

Source: MMS. 245 Report of the Directors 1892.

Clearly the adverse balance was most serious, but the losses resulting from the depreciation of stocks of expensive ornamental wares cannot be ignored. The Directors also reported that they were enabled, 'By Mr. Campbell foregoing rent and interest due amounting altogether to £9,924', to create a reserve fund of the same value and to further increase it by £375, the nominal value of 50 shares surrendered by Mr. Holdcroft. This fund was to be used to cover £765 spent in the reconstruction of the company and on Holdcroft's retirement. A further £1,908 from the fund was set aside to 'bring the Walbrook stock of ware to Stoke prices for stock by a reduction of 20%' (92).

Though losses in 1893 were approximately £1,000 as against £5,000 in 1892 the years immediately after the reconstruction did not feel the hoped for 'benefit of these and other reductions more fully' (93). The Report of the Directors to the Annual Meeting of Shareholders of 1894, during which year a loss of £7,000 was made, is evidence that whilst the value of ware manufactured and the value of ware sold had both continued to decrease wages and salaries as a percentage of the value of the ware made, bad debts, stocks of goods and materials at Stoke, Walbrook and Liverpool, and the rent and debenture interest due had all continued to increase (94). As a result, on 25 June 1894, the directors were 'compelled' to pass a resolution noting that 'it is impossible to find money to pay the interest due to Debenture Holders on February 11 last or to meet the companies liabilities' but that Mr. Campbell had 'expressed his willingness to enter as debenture holder and carry on the business'. At a special general meeting one month later a deed was completed giving full effect to this resolution, but as the 'arrangement for carrying this into effect' was not 'completed by the end of the year 11 August 1894....Mr. Campbell immediately after this meeting....advanced the sum of £3,100 to the Company for the payment of wages and other urgent liabilities, pending the completion of negotiations with the bank' (95).

It was then, in the mid 1890s, only the 'irrational' degree of commitment displayed by John Fitzherbert-Campbell that enabled the firm to survive. This pattern of events not only offers evidence of 'how strong culture can be even in the face of a vociferous market' but is also typical of behaviour which, according to Lipartito, cannot be explained by 'some functional model' (96). Moreover, it is probable that survival through the 'social drama' of reconstruction in 1892 and near collapse in 1894 served only to strengthen the existing culture (97).

Indeed, this period in the firm's history does seem to have intensified the involvement in and control over the firm of the Minton-Campbell family. Continuous losses were made during the last years of the century, rising to £16,000 in 1900, in which year John Fitzherbert Campbell gave notice to the firm and Company Secretary, Herbert Minton-Robinson that he 'by virtue of his appointment as Receiver, intends to take possession of the undertaking, property and assets of Mintons Ltd. on the 12 June 1900' (98). Though profitability

returned in 1902 a series of transfers continued to concentrate shares in the hands of John Fitzherbert-Campbell and, increasingly, his son John Campbell. For many years thereafter the firm's directors continued to be drawn almost exclusively from the family (99). By the time George Campbell took his seat on the Board in 1931 the company was again facing adverse trading conditions and making a loss, but between 1902 and 1930 a profit had been made in every year except 1915, with the result that in April 1913 it had been possible to revoke John Fitzherbert Campbell's appointment as receiver, the company being 'now able to pay all interest in respect of "A" and "B" debentures, and to carry on business without (his) intervention as receiver' (100).

Emerging with clarity from this case study is the powerful role played by company culture, governance and managerial structure in the determination of strategy at Mintons. Though the firm was aware that it faced constraints arising from the growth of continental industries, changing patterns of demand, and shifts in the organization of markets it responded with neither product diversification, process innovation, or developments in marketing. Certainly, no interest was shown in mass producing standardized wares or more a extensive integrated marketing and distribution network. Instead, placing its faith in the value of reputation, the firm embarked on a financial restructuring that drew deeply on the personal commitment of all involved in the firm and seemed intended to preserve the company, and its culture, with as little change as possible. Though it did not lead to significant growth this approach did not, on the other hand, prevent a return to profitability and whilst the firm is no longer independent the renown attached to its name persists (101). Thus, though it is possible to understand why Tweeddale wished to 'sympathise' with Sheffield cutlers George Wostenholm and Sons, whose position and strategic responses showed many similarities to those of Mintons, 'as it tried to shed its company culture of quality', it is as important to stress that 'personal capitalism had both strengths and weaknesses' (102). The example provided by Mintons demonstrates that both could be found in one firm and at the same time. However, in following the strategy described here, Mintons enjoyed advantages available to very few firms in the Potteries. Thus, in the following chapter the marketing responses of other firms in the district, either newer, smaller, less prestigious or making very different types of products, will be examined.

NOTES AND REFERENCES.

1. Church, 1969, p.325. Griffiths, in his study of corporate culture at Levers, also argues that 'Chandler's framework has significantly overlooked the softer cultural side of organisations, which may play (a) vital role in achieving high performance'. Griffiths, 1995, p.25.
2. Casson, 1993, p.43.
3. Farnie, D.A., The English Cotton Industry and the World Market, 1815-1896, 1979, p.193-4. Farnie argues that such characteristics offered firms an 'effective way of limiting competition' p.193 and, conversely, that competition was severest where products were 'undifferentiated...and therefore substitutable' p.192. Mintons' best wares were marked by a very high degree of differentiation and at least some of that exclusivity was transferred down the range of products made by the firm.
4. Chandler argues that the retention of personal capitalism was a strategy that 'continued to handicap...British industries for decades', 1990, p.262.
5. Discussions of business culture are, of course, fraught with difficulties, as Kono suggests 'corporate culture is an intangible asset', Kono, 1994, p.85.
6. Booth, P. 'Herbert Minton: Nineteenth Century Pottery Manufacturer' Staffordshire Studies, 1991, p.65.
7. MMS. 17, Letter from Colin Minton Campbell to his mother 14/5/1851.
8. Art Director Arnoux was made a shareholder in 1883 and both he and another leading designer, Solon, were paid well, both lived at prestigious addresses at the Villas, Stoke-upon-Trent.
9. In 1845 the union paper The Potters Examiner took care to distinguish the 'grovelling Spoil-Trade Makers...the little men as they are known' from the 'good employers, Ridgway, Minton and Copeland'. In 1866 union leader William Evans testified before the Select Committee on Masters and Servants that of prosecutions for breaking the yearly bond 'I do not know of a single one by Minton' and, finally, in 1872 the firm became the first to discontinue the despised custom of 'good from oven'. As a result of this and other actions the firm was not involved in the disputes of either 1880 or 1892. Burchill & Ross, 1977, p.46, p.15, p.126 & p.129.
10. Mintons was one of the first two firms in the Potteries, the other being the giant Hanley concern Powell, Bishop and Stonier, to take delivery of William Boutlon's 'atest 'Automatic Double Jigger and Jolly', capable of making 5-6,000 articles per day 'with ease'. The Pottery Gazette, September, 1885, p.1074. In the same period Colin Minton Campbell was developing the acid gold process of decoration and allowing Solon the space to perfect the 'Pate sur Pate' technique, 'one of Mintons major contributions to 19th century ceramics', an extremely skill intensive technique which could require as much as 50 hours work per-single item.
11. In 1840 Herbert Minton had been instrumental in purchasing and a half share in Richard Prosser's patent for making tiles from powdered clay by pressure. In 1851 Minton, in conjunction with James Naysmith, registered a further patent for pressing tiles from powder and in 1863 Colin Minton Campbell invented and patented a stove for drying plastic (i.e. unfired) ware. Celoria, 1973, p.43.
12. Tweedale argues that this fate befell high class Sheffield cutlers George Wostenholm and Sons in the late nineteenth century: the firm proving 'unable to...overcome their

suspicion and disdain of machine production,. Tweeddale, G. 'Strategies for Decline: George Wostenholm and Sons and the Sheffield Cutlery Trade, Transactions of the Hunter Archaeological Society, Vol 17. 1993, p.53.

13. Aldcroft, 1964, p.125.
14. Fitzherbert-Campbells behaviour may be thought of as an example of Moss's weak motivational assumption in which 'the first goal of the management team of any firm is the survival of that firm'. Moss, 1981 p.29.
15. Aldcroft, 1964, p.114 & p.117, Lloyd-Jones and Lewis. 1994, p.373.
16. Schein, 1992, p.2.
17. Livesay contends that 'Regardless of firm size... dominant individuals hold the key to enduring success' and goes on to 'loosely' define entrepreneurship as 'the art of aggressive management, practiced by an innovative, growth-orientated manager'. He maintains that there is a fundamental distinction between those 'whose goal is growth and those whose goal is stability. For some this may be the distinction between the entrepreneur and the manager'. By this definition the later members of the Minton family were more managerial than entrepreneurial in their goals and methods. Livesay, H., 'Entrepreneurial Dominance in Business Large and Small, Past and Present' Business History Review, Vol 63, 1989, p.3 & p.8. Terry Gourvish proposes a softer definition of entrepreneurship as denoting 'strategic decision making, for example about resource allocation and future growth'. Gourvish, T., 'British Business and the Transition to a Corporate Economy: Entrepreneurship and Management Structures' Business History, 29, 1987, p.33.
18. Schein, 1992, p.5. French describes similar behaviour in a very different company, Seiberling Rubber, where Edward Lamb complained that 'It was obvious to me that Seiberling was a company in which a great growth opportunity was going to waste under a decadent ancestor worshipping management'. French, M., 'Structure, Personality and Business Strategy in the U.S. Tire Industry: The Seiberling Rubber Company, 1922-1964' Business History Review, Vol.65, No.2, 1993, p.268.
19. Gourvish, 1987, p.21.
20. Jones, J. Two Hundred Years of Design Production at Mintons, 1995.
21. Martin, J., Sitkin, S. & Boehm, M. in Frost, P. et al (eds.), 1985, p.99.
22. Aldcroft, 1964, p.114.
23. Booth claims that 'Herbert was...acquainted with many artists and sculptors, many of whom visited the factory and he was a friend of Pugin. The benefit to the workforce, especially the modellers and painters, was to heighten interest in art and to encourage talent', 1991, p.82.
24. Thomas, J., The Rise of the Staffordshire Potteries, 1971, p.15.
25. Ibid., p.16 & p.19.
26. MMS. 227, Diary of John Boyle, entry dated 11/9/1841 & MMS 18-20, Letters from Colin Minton Campbell to his future wife, September, 1852.
27. MMS. 279, Minutes of an Exchange between M.D. Hollins and Minton and Co. and MMS. 280, Memorandum of Terms: Hollins and Mintons in which it was stated that 'Minton and Co. agree not sell tiles stamped with the name of the Campbell Tile Co. Mr Hollin contends that unglazed black, red, chocolate, drab and buff tiles whether thick or thin must be assumed to be flooring tiles. Mr. Minton agrees to this except that he thinks 3/8 ins thick or under may be required for purposes other than flooring, and if

- so Mintons are at liberty to supply them'.
28. Lloyd-Jones & Lewis, 1994. p.372
 29. MMS. 43-4, Address of the Minton Staff to Colin Minton Campbell 16/11/1876.
 30. Stuart, 1985. p.138.
 31. Lloyd-Jones & Lewis. 1994, p.370 & MMS. 233. Certificate of Incorporation of Mintons Ltd 22/10/1883.
 32. MMS. 235, Memoranda of Nomination of G. Leason as Director by John Fitzherbert-Campbell 26/10/1883. MMS. 238, Epitome of Documents compiled S. Herbert Cooper, Solicitor. MMS. 54, Address of Minton Staff to Herbert Minton Robinson on his 'entry into the firm' 5/11/83. Stuart, 1985 p.183.
 33. Casson, 1993, p.43.
 34. Ibid., p.44.
 35. Schein, 1992, p.15.
 36. Gourvish, 1987, p.24-5.
 37. Ibid., 24.
 38. MMS. 50, Address to John Fitzherbert Campbell 6/7/1882.
 39. Ibid.
 40. MMS. 1235, Schedule of Inventory of Fixtures and Articles in the Nature of Fixtures In and About Certain Manufactories, Works and Premises at Stoke-upon-Trent, Staffordshire, Belonging to Colin Minton Campbell 1/1/1884.
 41. MMS. 503, Report on Accounts to 11/8/1879.
 42. Ibid.
 43. Tweedale, 1993. At Seiberlings again, French finds that the company considered developing 'low-cost operations,...a semi-automated factory, preferably in a low-wage location, but....remained reluctant to abandon quality' a strategy that was a 'legacy of its formative years'. French, 1993, p.258 & p.252.
 44. Church, 1969, p.312.
 45. MMS. 240, Memoranda prepared by Thomas Minton and comparing performance in 1884 and 1890.
 46. Ibid.
 47. MMS. 501, Report on Accounts to 11/8/1877.
 48. MMS. 502, Report on Accounts to 11/8/1878.
 49. MMS. 501, & MMS. 1328, Annual Summary Book No.1.
 50. MMS. 246, Report on Accounts to 11/8/1894.
 51. Ibid.
 52. Coleman, D.C., 'Failings and Achievements: Some British Businesses, 1910-1980' Business History, 29, 1987, p.3. A review of the received opinion on accounting practices in nineteenth century British business has begun recently. In their study of cost accounting systems at the Consett Iron Company in the Mid-Victorian period, Boyns & Edwards conclude that 'management at this time understood the complexities of decision making, recognised the need for relevant information, undertook developments to ensure its availability...accounting innovations were often the product of perceptive businessmen struggling with real problems' Boyns. T. & Edwards, J.R., 'Accounting Systems and Decision-Making in the Mid-Victorian Period: The Case of the Consett Iron Company' Business History, Vol37, No.3, 1995, p.48. However, though Mintons commanded good flows of information they tended to use it only in retrospective

- review.
53. MMS. 526, Letter from Deloitte, Dever, Griffith and Co. to Minton Ltd. 20/5/1885.
 54. MMS. 501.
 55. Ibid.
 56. MMS. 502.
 57. MMS. 503.
 58. MMS. 504.
 59. MMS. 246.
 60. MMS. 509, Auditors Report 1898.
 61. MMS. 513, Summary of Wages and Salaries 1883-1891 & MMS. 231, Profit and Turnover from Accounts 1875-1920. Profit is pre-tax, after charging Debenture and other Interest and Depreciation, but before Dividends.
 62. MMS. 513.
 63. Ibid. For example in 1884 a total of £4,177 pounds was spent on models and moulds, engravings and copper plate and designs whilst £498 was spent on machinery. In 1891 the figures were £3863 and £656 respectively. Indeed, in this same period more was commonly spent on the repair of machinery than on the purchase of new machinery.
 64. MMS. 688, & MMS. 697-700. Minton paid £1,000 for the rights to Hughes' patent in three stages between 1862 and 1865. In 1870 a further £600 was paid for his second patent and Hughes himself employed on a salary of £200 p.a. for five years to oversee the utilization of his invention.
 65. MMS. 502.
 66. MMS. 246.
 67. MMS. 503.
 68. MMS. 513, 240, and 509.
 69. MMS. 1328. As much as £660 was spent on advertising, pattern sheets and photography in 1884, £160 more than was spent on machinery in the same year, the least spent was £139 in 1886 but the figure was typically in the region of £300-£400. Attending prestigious international exhibitions was also expensive, in 1878 £1550 more was spent on exhibitions than in the previous year.
 70. Kono, 1994, p.85.
 71. Minton's marketing strategy was not based on forward integration, but as Nicholas has argued 'There was no general rule that branch selling and production were more efficient than the agent system'. Nicholas goes on to claim that 'The major innovation in selling overseas after 1870 was the control by manufacturers of the channels of distribution. Control was exercised through an agency network based largely on local firms appointed as direct representatives'. Contracts between firm and agent often required vigorous, promotion, advertising, and travelling, requirements that appear to have been met by Currall and Strasser. Nicholas, 1984, p.500 & p.506. However, neither were agencies necessarily efficient. MMS. 1328. Annual Summary Book No.1 makes references to losses made by a South African agency in the first years of the twentieth century.
 72. MMS. 1331, Report of Currall and Strasser on 1902.
 73. Ibid.
 74. Porter argues, for example, that one strategic response open to firms in fragmented industries is 'Enhanced product differentiation, and therefore higher margins

-acheivable through activities' that add greater value. 1990, p.208.
75. MMS. 1331.
 76. Ibid.
 77. Ibid.
 78. Ibid.
 79. Ibid.
 80. MMS. 501.
 81. MMS. 550, Letter from Deloitte, Dever, Griffith and Co. to P. Holdcroft, Walbrook 4/9/1889. In 1892, as losses continued to increase, sales at Walbrook increased by £1256 over 1891 but at the same time Walbrook's purchases from Stoke, up by £2584, increased at twice rate, leading to an accumulation of unsold stock. MMS. 245. Report of the Directors August 1892.
 82. MMS. 240.
 83. MMS. 245.
 84. MMS. 513, & 1328.
 85. MMS. 18-20.
 86. MMS. 234, Mintons Agenda Book 20/10/1884-18/4/1902.
 87. MMS. 239, Agreement between John Fitzherbert Campbell and Mintons Ltd 20/1/1891.
 88. MMS. 241, Memorandum Embodying Terms for the Proposed Reconstruction of Mintons Ltd.
 89. Gourvish, 1987, p.24-5.
 90. MMS. 241.
 91. MMS. 245.
 92. Ibid.
 93. Ibid.
 94. MMS. 247, Report of the Directors to the Annual Meeting of Shareholders 26/10/1894
 95. Ibid.
 96. Lipartito, 1995, p.2. Schein too notes that many organizations 'continue to behave in obviously ineffective ways, often threatening the very survival of the organization', 1992, p.4. On a more empirical level Church suggests that the history of Kenricks is evidence of 'just how determined a family firm can be in resisting extreme pressures for change', 1969, p.323.
 97. The concept of the social drama, defined as moments 'regarded as critical events by those in an organization', is deployed, for example, by Pettigrew in his approach to studying organizational cultures. He argues that 'they provide a transparent look at the growth, evolution, transformation, and conceivably, decay....over time' and, most importantly, that 'dramas can provide consequence meaning in relation to routines'. Pettigrew, A. 'On Studying Organizational Cultures' Administrative Science Quarterly, Vol.24, 1979, p.570-1.
 98. MMS. 575, Note signed by John Fitzherbert Campbell dated 8/6/1900.
 99. MMS. 249-251, Various assignments of sums of money between members of the family secured by debenture bonds and MMS. 253, Papers Relating to the Appointment of Directors between 18/2/1915 and 19/10/1931. In terms of the allocation of directorships John Campbell, son of John Fitzherbert-Campbell was appointed a director in 1915, Colin Herbert Campbell Governing Director in 1919, Herbert Minton Robinson as a Director, also in 1919, Herbert D. Minton Senhouse as a Director in 1922 and George

- Campbell as a Director in 1931.
100. MMS. 587-8, Two letters from Cooper and Co., Solicitors, to Mintons Ltd dated 5 & 8/4/1913.
 101. Indeed, in 1974 Gay and Smythe noted that 'Although Minton wares are held in the highest esteem, in 1960 the capital of the firm amounted to only £500,000 and profits were a mere £43,000. Presumably the directors of the firm had regarded growth as vulgar, something which might tarnish the perfection of Minton bodies, decorations and glazes'. Gay and Smythe go on to note that although production increased after the firm was acquired by Doultens in 1968 'Extreme care was taken to preserve Minton's reputation for dedicated production of top quality wares', 1974, p.88.
 102. Tweedale, 1993, p.53, Lloyd-Jones & Lewis, 1994, p.407.

6: DISTRIBUTION, MARKETING AND EXCHANGE.

This chapter will explore the marketing strategies of firms in the Potteries, and it will be shown that a range of structural, cultural and resource factors impacted on their ability to respond to changing conditions in both domestic and international markets. Firms in the Potteries strove to sell their products on the basis of quality and differentiation. Such marketing strategies may be related to the physical and human resources of firms, deploying skilled workers on multi-purpose machines, and their product-market orientation, typically emphasizing the production of a wide range of goods destined for dispersed and heterogeneous markets. It will be shown that, in general, the industry ‘remained committed to disintegrated market structures’, throughout a period during which foreign pottery industries were competing increasingly on price and volume (1).

The chapter is divided into five sections. In the first section the factors influencing the formulation of marketing strategies in the Potteries will be introduced and some of the interconnections between those factors suggested. It will be argued that, conditioned by the culture of the firm and the district, and by the size, structure, and resources of their firms, many producers viewed their products more as ‘objects’ than as ‘commodities’ destined for exchange. Schooled in the ethos of the workbench and ambiguous in their attitude to mechanization they regarded their wares ‘more as artifacts than as products....symbols signifying the company’s reputation’ (2). At its most extreme this attitude could give rise to openly anti-commercial sentiments, decrying ‘these degenerate days of buying and selling’ and insisting upon the ‘certain eventual triumph of the best work and the best workers’ (3). Moreover, a ‘lack of co-operation for marketing purposes’ was combined with an average firm size than ‘rendered it difficult to establish selling organizations and agencies for dealing with foreign markets’ (4). Broadly, then, because of its structure and culture, it was the ‘independent family firm which stood in the way’ of forward integration in the Potteries at a time of considerable change in the market (5).

Secondly, the institutions of exchange and distribution utilized by the industry will be examined. It will be shown that both specific firms, particularly small firms, and the wider

industry occupied a weak position relative to those institutions and were often unable to resist downward pressure on prices. Thus, the industry's disintegrated market structures tended to conflict with attempts to sell on the basis of quality. In the third and fourth section different aspects of the relationship between the resources of firms and their market orientations will be explored. Firstly, it will be shown that co-ordinating supply and demand impacted heavily on the managerial resources of firms, the holding of stock being a particularly vexed issue. Secondly, wide product ranges, a desire to differentiate products, and the endless cycle of fashion all demanded that firms' resource include some form of provision for design. Theorists such as Sabel and Zeitlin argue that much of the strength of flexible specialists lies in their ability to pursue the opportunities offered by fashion, but it will be shown that in Potteries fashion was often regarded with suspicion and the need for design capability as a burden. As a result the design capabilities of many firms were inadequate and the designs produced derivative. Finally, the strategy of market diversification, and its relationship to both changes in the competitive environment and in the resources of firms, will be discussed.

6:1 Three Case Studies: Copelands, Dunn, Bennett & Co., & The Empire Porcelain Co.

It is also clear, however, that any barriers to the reshaping of marketing strategies were not binding and 'some firms proved capable of challenging successfully a given set of constraints' (6). There were firms in the Potteries able to derive creative energy from the tensions between tradition and change that the industry was experiencing in the late nineteenth century, though their attempts to forge innovative paths in the market-place were rarely dependent on innovations in organization or process. Three such innovative marketing strategies will be examined here, the solutions found by these firms offering further illustration of the constraints acting on all firms. These three innovative strategies were based on, respectively, differentiation through quality and price, product innovation and targeted marketing, and a careful alignment of production and marketing strategies. These different responses may in turn be related to Porter's three generic strategies of differentiation, focus, and cost leadership, though care must also be taken not to deny the 'diversity and complexity of business strategies in practice' (7).

A very pronounced degree of differentiation, 'seeking to establish a distinctive product or reputation that will command a premium in the market', was the aim of the Art or Studio Potteries formed by a number of leading firms, including Doultons, Wedgwoods, and Copelands, in the last two decades of the nineteenth century (8). These studios, wholly owned by large parent companies, produced very low volumes of high quality decorative wares, often drawing their aesthetic inspiration from the latest developments in the art world. Clearly marked as being the work of a single identifiable artist or craftsman such products were the antithesis of the mass of common table-ware and other goods produced in the district and as such could command premium prices (9). Thus, it can be argued that the Studio Potteries sought to exploit a niche market for wares of the highest quality that was being progressively reinforced by the spread of mechanization in both the foreign and domestic industries.

The appeal that these wares were intended to have may be discerned in an advertisement of 1886, in which W.T. Copeland and Sons, successors to Josiah Spode, 'the most successful manufacturer of the Japan style of decoration', announced that they

continue to produce these Japans from the original pattern books of Spode, and by precisely the same methods as employed by him. These Japans are executed entirely by hand, thus securing the spirit and fancy of the design and brilliance of colour-qualities wanting in the mechanised and heavily tinted copies produced by imitators who print their designs. (10)

This advertisement emphasizes three interlocking attributes that Copelands believed their Japans possessed. These attributes were derived from the firms resources and its history. Firstly, the product was explicitly linked to one of the most prestigious names in the industry, Spode. Secondly, that connection was reinforced by the claim that not only the design of the wares but also the method of their manufacture had remained unaltered, legitimizing Copeland's exploitation of Spode's reputation. Thirdly, emphasis on the importance of continuity with the past is further accentuated by advantageous comparison with imitative products made with modern production methods. The claim on Spode's

reputation could not be made lightly and required Copelands to possess an appropriate resource base.

The example of Copelands demonstrates the role that history, name, and continuity could play in the determination of strategy, and the construction of company culture, in the Potteries. William Taylor Copeland, whose father William had been in partnership with Spode c.1800, was himself a partner of Josiah Spode II from 1824, and in 1833 acquired the Spode factory from the executors of Josiah Spode III. During an initial partnership with a third party the firm traded as 'Copeland and Garrett (late Spode)' and then as 'William Copeland (late Spode)' from 1847 to 1867. In 1867 four sons were taken into partnership and the firm became known as W.T. Copeland and Sons. Thus, though in control of the firm for over three decades and successful in negotiating generational transition within his own family, Copeland continued to view the Spode name as having commercial value. However, the revived production of the hand-made Japans in the 1880s was a complex strategy dependent on a number of factors, not least of which was the ownership of intellectual property in the form of the original pattern books, that other, particularly younger, firms would find it hard if not impossible to replicate.

Furthermore, Copeland's production of the Japans and other Art-Studio wares took place in the context of a very large firm also doing a volume trade in earthenware, particularly in the firm's own 'ivory body' earthenware (11). Nonetheless, it is unclear whether such exclusive products were intended to be profit-making in their own right or to function as a form of advertising, reinforcing the firm's reputation monopoly. Neither is it clear that they yielded significant competitive advantage. Achieving such marked differentiation was costly and was unlikely, almost by definition, to create significant new sales opportunities. It has already been shown that Mintons found it difficult to realize a profit on wares that were expensive to make in terms of both labour and materials and Copelands also appear to have suffered in the 1880s and 1890s, their RV contracted from £1552 to £1000 between 1879 and 1898, suggesting a reduction in productive capacity, though the firm did survive and remained an industry leader throughout the twentieth century (12). Where they did not have the financial support of a large firm such as Studio Potteries could very easily lead to failure. One example is

that of W.H. Turner who 'during three years expended £12,000 on the production of art pottery, and to do this had borrowed money from many different people', only to become bankrupt in 1896 (13).

However, whilst younger firms could not trade upon the kind of 'reputation monopoly' conferred by longevity they were also often less hidebound by tradition and it was possible for an enterprising firm to create very different forms of niche market (14). An excellent example is that of Dunn, Bennett and Co., whose success in the late nineteenth century stemmed from the Schumpeterian entrepreneurial energies of its proprietors and the formulation of a strategy which combined differentiation and focus. This firm, founded in the mid-1870s, had by the turn of the century established a powerful position in the market for speciality wares for hotels, restaurants and other caterers, railway companies, and shipping lines. The firm began as a partnership between Thomas Wood Bennett and William Dunn in 1875, in which year Bennett also married Dunn's daughter, Mary. Bennett had previously worked for earthenware manufacturers E.J. Bodley and Sons, whilst Dunn had been in business on his own account at the Boother Works, Hanley, where the new partnership initially remained. The firm started small, the premises on Brook Street, Hanley having an RV of £217 in 1882. However, the firm prospered because, so Bennett's son believed, 'Wm. Dunn was a good practical potter and T.W.B. was a hard working practical man', and the firm moved to larger premises at the Royal Victoria Works, Burslem in the mid-1880s. The partnership secured financial backing from Enoch Colcough, uncle to Wood's wife and member of an ancient potting family, who was a sleeping partner from 1877, became active on the retirement of Dunn in 1900 and was bought out by Bennett in 1905. The business remained an independent family firm until taken over by the Doulton group in 1968, though Frank Bennett, grandson of the founder, remained Managing Director (15).

The firm's fortunes first showed marked improvement from the late 1880s. This success was built on a simple but effective product innovation combined with carefully targeted marketing and, eventually, forward integration into distribution. Travelling frequently for the firm, particularly in the United States, Bennett noticed that heavily used hotelware quickly developed unsightly chips. A thickened or rolled lip under the rim of plates worked to

transfer shocks, and thus also chips, to the back of the plate where they were less visible. The idea was successfully patented and though clearly of some interest to domestic householders was immediately identified by the partners, using their existing knowledge of the market, as having a particular appeal to hoteliers and other commercial caterers, and from the 1890s they concentrated exclusively on this market. Whereas previously their ironstone china had been advertised merely as ‘adapted for hotels, restaurants, clubs, public institutions etc.’ the firm began to style itself ‘Specialists in the Manufacture of Crockery...for Hotels, Clubs, Steamship and Railway Co.s and caterers generally’ (16).

The firm produced a full range of the ceramic goods likely to be required by any hotel and catalogues could include as many as 500 products and variations, but the ‘Patent Unchippable Surface Plate’ formed the bedrock of their trade. The economic benefit to their target customers of harder wearing crockery were obvious, one catalogue of the early twentieth century claiming for the patent plates a ‘saving of 50%’. The firm did not, however, compete on price but on quality, contending that ‘We do not profess to sell at the lowest prices; We do however give the best value, as the Best is the Cheapest in Crockery Ware’. Advertising material also stressed that the plates were of ‘smart appearance’ and in no way ‘heavy or clumsy’. These and other qualities of the firm’s products were said to be guaranteed by ‘scientific methods of manufacture in which only the very best materials and the most highly skilled workmanship are used’, and by a depth of ‘experience and enterprise not shown in the same direction by any other firm’ (17). Again, as at Copelands, pronounced differentiation was claimed for a product. Clearly there could be many different categories of ‘exclusive’ products. Production of the patent plates, standing at 12,000 units per week in 1895, expanded rapidly, reaching 25,000 units per week in 1898 and 50,000 in the first decade of the twentieth century (18).

The firm’s advertisements offered further inducements, including free samples and quotes, free engraving of Badge Copper Plate so wares could carry the names and liveries of hotels and companies, renewal and matching of pieces in the event of breakage, and monthly accounts. The firm clearly aimed to provide a quality service alongside a quality product. A showroom was established in London c.1890 and agencies in Australia, Hong Kong, India,

Egypt, Italy, South America, New York, and Canada after 1900. Advertisements frequently carried news of medals won at International Expositions and specialist catering exhibitions, and testimonials from both customers and magazines such as *The Caterer*, *The Hotel*, and *The Caterer and Hotel-keepers Gazette*. The result of this close attention to the market was that one such journal declared ‘Few firms have deserved so well of the catering trade as Dunn, Bennett and Co., for they have devoted all their time and energies to the trade for many years, and are at present time probably the largest manufacturing firm of chinamen, making specially for the Hotel and Restaurant business, in the world’ (19).

Further product innovations were introduced, all evidence of continued close attention to the needs of their customers. Firstly, the unchippable surface principle was applied to meat and vegetable dishes, and sunken handles and knobs introduced so that items would ‘stack well...saving considerable storage space, and there are no projections to knock off’ (20). There followed the patented “Perfecto” Tea and Coffee Pot, promised to neither drip nor chip, and the “Safety” Shape Cup and Saucer designed for ship-board use. Finally in 1909 the firm ‘struck out a new decorative idea by transferring to....plates hotel views....A view of the hotel occupies the central portion of the plate, and around the rim is an elegantly designed border in excellent taste. Hotels ordering such specially designed ware secure an advertisement of a rather novel nature’ (21). Not surprisingly the firm met with competitors and imitators and warned customers to ensure that they were getting the genuine article, though there is no evidence that legal action was taken in defence of either brand names or patents.

Dunn, Bennett and Co. represent a very successful example of niche or focus marketing, but there is reason to consider them exceptional. Whilst there remained much scope for process innovation in pottery manufacture, distinctive product innovations of the kind on which the firm was built, particularly ones that could be patented, were far more elusive. As will be shown later the differentiation that could be achieved by mere surface decoration was generally weak and the industry’s largest market, that for common table-ware, was vast, lacking the more easily defined and targeted needs of the hotel trade. True niche markets in which there were few competitors were rare. Instead the majority of pottery firms were

unable to clearly define their customers and achieved only limited focus through combining production of a broad product type, china or earthenware for example, with some geographical focus, home or export, Colonial, Continental or American. Rarely did this approach make them as successful in the competitive battle as Dunn, Bennett and Co. The firm's forward integration into distribution will be considered shortly.

Differentiation and focus strategies, as defined by Porter and pursued by Copelands and Dunn, Bennett, were perhaps those most appropriate to a fragmented industry such as pottery. However, entrepreneurial flair was not confined to these firms. A class of firms deploying best practice production techniques and aggressive selling policies, willing to enter the competitive, mass-markets into which foreign competitors had made the deepest incursions, was also emerging. Economies of scale were not yet decisive in the pottery industry, but such strategies represented the beginning of a move towards the pursuit of cost leadership. One firm taking this path was the Empire Porcelain Co., founded in 1896 with four hands and by 1898 employing 600 and constructing an entirely new factory, the firm's original works on Elgin Street, Shelton having 'proved too small in capacity for their extended business' (22) The firm's strategy was forthrightly stated by Mr. Harold Emery

Our business is to make such goods as have been imported in to this country, and we prove we can make them as cheap here as they are made on the continent. We are competing in France, in Germany, in Belgium and in Norway. We have permanent agents there, and enter into direct competition with the foreigner with just such goods as were imported from him. (23)

In order to pursue this strategy the making shops on the first floor of the new factory were fully fitted up with steam jollies and automatic batting machines, powered by a 32 h.p. engine in the basement. The firm's physical resource base was then very different to that at Mintons where, in the mid-1880s, steam powered making machines were the exception. The firm also deployed advanced, patented, continuous operation kilns, distinct from and less significant than the continuous ovens then being developed in Germany but nonetheless moving the firm's productive orientation closer to that of a throughput industry. Investment

in these developments was considerable, £10,000 was expended on the new building and £5,000 on machinery and fittings. The Empire Porcelain Co. was a firm in which marketing and resource responses operated on one another in sequence as the business expanded very rapidly in the first few years of its existence (24).

However, the firm still placed a clear emphasis on the quality of the workforce that they employed. Emery asserted that 'One British workman was equal to two foreigners....Why? Because (he) was a vastly better man physically and mentally. He was well fed and therefore more capable....and the Empire pays....accordingly' (25). Exposed again is the tension between tradition and the pressure for change, exerted by an altering competitive environment, that lay behind Dunn, Bennett's claim to manufacture using both 'scientific methods' and the 'most highly skilled workmanship' (26).

Though Dunn, Bennett and the Empire Porcelain Co. were able to accommodate these conflicting forces within innovative strategies Emery's description of his firm's resource base is indicative of a genuine dilemma facing most firms in the Potteries. Skilled labour was both more central to, and more expensive for, firms in North Staffordshire than for their continental competitors. In the context of international markets, increasingly dominated by price, the high wage costs of firms in the Potteries clearly acted as a constraint. Either reduced profit margins had to be accepted or the consumer had to be persuaded to pay more. Thus, cost constraints might be tackled through marketing strategies that conveyed the greater value added by the skilled labour force of the district, hence the common emphasis on quality.

However, the emphasis on quality was not related solely to the resource bases of firms in the Potteries. Account also has to be taken of the craft-oriented culture of both labour and capital in the district. Broadly, many within the industry were uncomfortable with the directions in which they felt changing market conditions were driving them. There was considerable uncertainty as to the effect of mechanization on the human resources and the products of firms, and the erosion of skill and the imposition of standardization were both deeply feared. The pressure to mechanize and standardize was derived from the nature of the

competition offered by foreign industries concentrating on cheaper, mass-produced wares. This development may have appeared to allow the possibility of greater differentiation for wares made in Staffordshire. However, conversely, it was felt that continued falls in selling prices tended not to increase either the elasticity or segmentation of markets for ceramic goods but acted only to devalue the district's wares in the eyes of consumers.

Mechanization, which 'tended to equalize products and costs', was seen as undermining the basis for differentiation between the wares of Staffordshire and those of foreign industries. Machinery was 'unfortunate' because it worked to 'equalize the quality of goods. When hand labour was the rule there was never any question about English pottery being the best made in the world' (27).

Craft consciousness was rooted in the small-scale personal capitalism of the district. It was recognized that changing conditions held implications not only for the way firms made and sold their products but also for the structure of individual firms and of the industry as a whole. Reaching the most valuable international markets, particularly the United States, would increasingly require not only the right product but also the right scale of production and form of organization. The small, independent family firm has been implicated by Aldcroft, Elbaum and Lazonick, Kirby, and others in the failure of British industry to integrate forwards, and commentators in the Potteries also identified such firms with disappearing market conditions (28). It was acknowledged that 'Competition, ever growing keener will cut down profits to the last margin;....this of course means capital, large turnovers and large factories' and that 'Whether the small businesses will be eaten up by the large, or the trust system introduced, remains to be seen, but, except for artistic and special purposes, the small manufactory is doomed' (29). This development was viewed as both inevitable and regrettable, but for the time being small and medium-sized firms continued to dominate the industry. Scale was not seen as the sole determinant of the relationship between firms, their products, and the market. Governance was also held to be important. Whilst it was admitted that the 'principle has not yet been extensively applied' to the pottery industry, changing conditions, it was argued, would create business structures that conflicted with the interests and values of personal capitalism. The practices and priorities of companies with limited liability were singled out for comment, echoing attacks made by

some sectors of the cotton industry on the Oldham limiteds during the Royal Commission of 1886.

The extensive promotion of companies with limited liability has drawn a very large amount of capital into trade; and the holders of this capital being numerous, and with small individual liability, are satisfied with small profits. Private manufacturers ...are therefore compelled by the competition of these limited companies to accept smaller profits also. (30)

It has been shown, however, that Potteries' firms registering as limited liability companies in the late nineteenth century generally remained private concerns. They were not looking either for fresh capital or managerial talent. Thus, so as far as the pottery industry was concerned, this line of reasoning was largely speculative and the implications of these new pressures on the industry were normally seen as being located at some indeterminate point in the future. Nonetheless, the standing of his firm in the market was perhaps as important to the proprietary capitalist as independence, and though large manufacturers and the trade press continued to attack the very smallest 'mushroom' firms, the districts 'fragmented capitalism' held sway. So long as the 'small operators sought individual gain', as Scranton has observed that they did in the Philadelphia textile trades, then any realignment would be 'obstructed by a profusion of conflicting interests locked into short-term strategies for immediate survival' (31).

Thus, though it has been stressed that mechanization and foreign competition underlay the uncertainty with which the industry viewed the future, culture further complicated the formulation of marketing strategies. An examination of the standardizing effect of pottery machinery in the late nineteenth century, and thus of their impact on the marketing strategies of batch or specialist producers, will reveal that the industry was subject to cultural as well as institutional rigidities. In other words, the industry was not only inhibited from reforming its existing institutions and structure but was also unwilling to. It was argued that the industry's only hope lay in the maintenance of standards of workmanship that were more

consistent with the organizational form of personal capitalism. If these standards were defended

the operatives will still be in possession of their inherited and acquired skills, and the profits of the masters will be a tribute from the world at large to their knowledge and conscientiousness. But if, on the other hand, the trade is trading on the reputation of British goods, and cheapening production by the use of inferior materials, machinery and women labour, and less coal, then success, such as it is, will probably be of short duration, and the lookout for the next generation of maker without reputation and workmen without skill is anything but promising. (32)

The 'cultural centrality of the firm to the lives of its proprietors' demanded the maintenance of standards. At the root of these attitudes lay craft pride, a belief that 'The true potter will always be an artist; but the manufacturer, who caters for the number of people rather than the artistic few, will ever be driven to bow to the god of cheapness' (33).

What was the effect of mechanization on the quality of the wares made in Staffordshire? Did mechanization necessarily imply standardization and actual deterioration in quality? Was the threat over-stated by the industry? In order to address these question it is necessary to return to the jigger and the jolly, machines that, as we saw in chapter 4, were central to the mechanization of the industry. Advertisements for, and reviews of, new models in the trade press seem to place a clear emphasis on their capacity to both increase and regularize production. In 1882 Boulton exhibited new jollies in Burslem, which for 'perfection of machinery and perfect simplicity, stand unrivalled'. Although the reviewer, an anonymous 'practical potter', was certain the machine would represent an 'immense saving' he was most impressed by their ability to make 'more perfect work....Wares made by Mr. Boulton's new jollies will be of equal thickness, even weight, and consequently of exact measure' (34).

This, especially when it was also noted that Boulton's Automatic Double Jigger and Jolly of 1885 was commended as capable of producing 5-6,000 units per day 'with ease', sounds much like the 'American notion of fine "effect"....producing with mechanical rapidity and

exactitude that which the European art workman does, and the European art amateur prefers should be done patiently and lovingly by hand' decried in Staffordshire (35).

However, although these machines allowed for greater standardization and a higher volume of production they compelled neither. Relatively simple machines, little more than jigs making for accuracy of shape and dimension, they needed more than mere minding and required a degree of skill if they were to be successfully employed. Though faster than throwing plates on a wheel or hand pressing hollow-ware they did not need to be applied to long runs of identical units in order to become economically viable. They were a flexible, multi-purpose technology. Most importantly, in terms of the scale, speed and standardization of production that they necessarily implied, they did not have to be powered by steam, and were thus as viable in the smallest workshop as they were in the largest, best-practice factory (36). It has already been shown that in 1884 few of Minton's making machines were steam powered and in 1896 Boulton noted that his best selling equipment was that which 'deals with the driving of jiggers, throwing wheels, lathes and other machines by means of an endless band', suggesting that many manufacturers had equipped themselves with such machines before acquiring a source of motive power. Asked if many manufacturers employed this drive system Boulton replied 'Yes, most works of note now utilize it', implying that many outside that top stratum still did not (37). The degree of mechanization undergone by the pottery industry in the 1880s and 1890s represented a step towards closer regulation of the work process, but it did not compel standardization, wide product ranges remained characteristic, or displace skill. For the Potteries the relationship between mechanization and standardization was, to a much greater degree than in the boot and shoe industry for example, a gradual, long-drawn out, and complex process.

David Pye, a craft practitioner and theorist, has proposed a definition of craft work, focused on the relationship between forms of work and their outcomes rather than on technologies, that can further illuminate the impact of mechanization on the pottery industry at this time. For Pye craftsmanship is simply workmanship 'using any kind of technique or apparatus' in which 'the quality of the result is not predetermined....the quality of the result is constantly at risk during the process of making'. In contrast, in the 'workmanship of certainty', which

is 'always to be found in quantity production, and found in its pure form in full automation', the 'quality of the result is exactly predetermined before a single saleable thing is made' (38). Pye specifically associates the workmanship of certainty with 'standardisation', but also allows that there are 'intermediate form(s) of workmanship'. Thus, on a continuum of practices that stretches from pure workmanship of risk to pure workmanship of certainty the last quarter of the nineteenth century saw the ceramic industry shift a little away from risk and towards certainty, but the balance had not been tipped in favour of a thorough going standardization (39). The relationship between mechanization, standardization, and the market appeared unresolved, allowing culturally rooted doubts about change to inhibit progress.

Gradual change in the technology of ceramic production and in markets for ceramic goods thus complicated the formulation of marketing strategies in response to those changes. Economies of scale were not yet sufficient to encourage many to pursue cost leadership, mass-production, and the techniques of mass-marketing. Indeed, as was shown in chapter 2, the industry was tending to become less concentrated. However, firms such as Mintons were finding that the effectiveness of differentiation strategies could be uncertain and the focus on quality unrewarding. Some entrepreneurs and managers, such as those at Dunn, Bennett & Co. and the Empire Porcelain Co. did react decisively in this uncertain environment, but many others found themselves "stuck in the middle" lacking clear direction' and proceeding by cautious adaptation (40). Indecision was further heightened by the craft culture prevalent in the industry. This culture promoted the belief, expressed by Pye, that 'There is something about the workmanship of risk, or its results....that has been long and widely valued' (41). The argument that replacing the wheel with the jolly 'is undoubtedly a retrogression, bought about by keen competition, and the desire to avoid the risk and care required in the production of thrown and turned ware' depended for its force on just such a craft-oriented valuation of risk and uniqueness as desirable qualities (42).

Indecision and uncertainty have been shown to have characterized reaction to other forces, such as the rise of German competition. For some the threat posed by Germany was very real, to others it seemed over-estimated. However, if 'The essence of formulating

competitive strategy is relating the company to its environment' then any adequate response must originate in a clear vision of that environment (43). In the Potteries that vision was often partially obscured by culture and complacency. Coleman and Macleod make reference to the 'technical conservatism of English pottery manufacturers' and quote the belief of a member of the Wedgwood family in the 1880s that all prior progress in the industry could be ascribed to 'results which have been attained by the practical man' (44). They stress as influential 'powerful currents of individualism' and 'continuity', qualities central to the 'environment and institutions' in which firms in the Potteries operated (45). Most importantly, because these were qualities 'peculiarly antipathetic to mass-production', the power of continuity and a naturally conservative individualism was most damaging at the close of the nineteenth century when uncertainty over many factors influential in the formulation of marketing strategies remained strong and unresolved.

6:2 The Institutions of Distribution and Exchange.

Changes in the market-cum-technological environment in the late nineteenth century had then caused some firms to examine the relationship between their products and the market. Few reached clear or decisive answers and their conclusions were often negative. A perceived loss of differentiation for Staffordshire's products was deeply regretted. The same forces also led to reflection on the relationship between firms and the institutions of distribution and exchange. Here too there was often a note of pessimism and some concluded that 'there must be something wrong with the medium of exchange, or with the intermediaries between' producer and consumer (47). As this suggests distribution and exchange in the pottery industry was vertically specialized. Few firms integrated forwards to any degree. It was in this context that the question of the firms 'ability to shape demand' and to control prices dominated concerns over the organization of distribution in the Potteries (48). The role of the dealer in the cost and demand structures of the industry was explored in general terms in chapter 3. Discussion will now focus on the specific demands and constraints this system placed on firms.

The majority of firms in the Potteries were reliant on orders from buyers working for jobbers and wholesalers operating in both the domestic and export markets. The spatial clustering of the industry, both in the district and its component townships, did much to encourage the seasonal influx of buyers coming to Staffordshire to view the samples of firms, to bargain, and to place orders. Reports from the early 1880s that manufacturers were 'busy executing the orders which the Americans have left', or that 'Orders are, literally speaking, pouring in on every side' are typical (49). One result of this pattern of development was the emergence of a commercial infrastructure, concentrated in Hanley and confirming that town's emerging pre-eminence over the others. This infrastructure consisted of a network of agents, banks, and other supporting institutions such as commercial hotels (50). Keates and Fords Directory of the Potteries and Newcastle-under-Lyme of 1865-6 records no less than 62 agents connected with the trade in Hanley alone (51). So well established was the system of visiting buyers that the American government maintained a Consulate in Tunstall, where large firms involved in the American trade were concentrated, during much of the late nineteenth century. The Consulate was testimony not only to the interest shown by the American government in studying the English industry but also to the need to provide a range of services for its visiting nationals. The near permanent American presence was emphasized when a representative of the United States government spoke at the inauguration of the North Staffordshire Exchange in 1875, Mr. Lucas declaring that the 'inhabitants of the Potteries might look forward to a speedy increase of their trade with America' (52).

The disintegrated system of distribution in the pottery industry may be explored by reference to transaction cost models; they do not, however, fully explain its persistence (53). Given the scale and structure of the industry 'in terms of transaction-cost considerations clearly businessmen were acting rationally' in not internalizing the functions of distribution and marketing (54). As Moss argues 'economies of joint exchange will be available to intermediaries, but not to producers, as long as the market is characterized by product differentiation' and 'if there are many small producers and users of the commodity.... intermediation is likely to be economic, and there will be no inducement effect to vertical integration' (55) These conditions clearly pertained in the pottery industry. Innovations were

made, it has already been shown that firms such as Dunn, Bennett were in the process of developing agency systems, described by Nicholas as the 'vital marketing innovation of the era', but they were limited in both their breadth and depth. Uncertainty and institutional 'lock-in' reinforced economic rationale in checking their spread throughout the industry (56). Nor is it clear, however, whether the system did not also yield considerable disadvantages; in eschewing forward integration manufacturers were also foregoing 'managerial co-ordination' of many important marketing activities (57).

Thus, though it is probable that only the very smallest firms relied exclusively on buyers, even where agents or representatives were employed they were rarely evidence of a Chandlerian investment in marketing and typically remained outside the organizational boundaries of the firm. Those representatives employed directly by firms were, moreover, often not part of a professional sales force but one of the owners of, or partners in, the firm. Of this Thomas Wood Bennett's several trips to America in the 1880s on behalf of Dunn, Bennett and Co. are typical. The practice was even to be found in the very largest firms, as is evidenced by the appointment of Thomas Minton to the London showrooms on the retirement of Peter Holdcroft in 1892 (58).

There were also obstacles to the selection and subsequent monitoring of reliable agents, particularly those situated abroad, and the direct ownership and control of showrooms and warehouses in London and elsewhere, a strategy initiated by Wedgwood in 1785, lay beyond the resources of most firms and was never the dominant form of distribution and exchange amongst even the largest firms (59). It has already been shown that the relationship between the Minton factory in Stoke and the London showrooms at Walbrook was both uncertain and often unremunerative and the case of Davenports provides further illustration of the difficulty that even large and well established firms had in establishing and maintaining such networks.

Davenports was a member of the district's small cluster of very large and prestigious firms, founded in 1785 by John Davenport and passing through three generations of family ownership before becoming bankrupt in 1887. During the nineteenth century the firm

maintained either agents or showrooms in London, Liverpool, Hamburg, Brussels, Lubeck, New York and elsewhere; however most of these were temporary and only those in England were owned by the firm (60). Ownership did not, however, eliminate the problem of finding a manager of sufficient competency, drive, and knowledge of the industry, and the firm was rarely satisfied with the choices that it made. A speciality or fashion industry in which orders gathered away from the factory need to be carefully checked for compatibility with the technical capabilities and production capacity of the firm required sales personnel with both commercial acumen and a close knowledge of production. This proved to be a rare combination and the Potteries based management of Davenports frequently complained that their string of London representatives simply did not understand the trade. Even when the competence and drive of a representative were not in question, when they were a partner for instance, problems could create unexpected demands. Thus, when Thomas Wood Bennett lost his samples in transit to North America he made a classic entrepreneurial decision. Instead of returning home he collected examples of wares that he liked from the hotels in which he was staying, took orders for them and only then returned to Staffordshire to announce the new product range to the factory (61).

By the 1880s Davenport's was coming under considerable financial strain and maintenance of its network of showrooms, warehouses and agencies was proving costly, ineffective, and increasingly hard to justify. In a letter of April 1880 Herbert S. Cooper, the firm's solicitor, was 'urging Mr. Henry (Davenport) to dispose of Liverpool without delay', though he did note that some 'speak of Liverpool as Longport's best customer', suggesting an ambiguous relationship between the factory in Staffordshire and the long established house in Liverpool (62). Things were no better abroad, the New York agency losing £541 in 1883 and £751 in 1885 (63). Though these losses may not have been instrumental in the subsequent failure of the firm they are indicative of not only the increasing competitiveness of the valuable American market but also of the difficulties met in attempting to maintain effective and commercially sound lines of communication with foreign markets.

The pottery industry had to wait until the twentieth century brought structural adjustment before direct selling became a viable strategy (64). Anecdotal evidence from surviving

members of the Bennett family suggests that around 1910 Dunn, Bennett and Co., which has already been shown to have established a commanding position in the niche market for hotel and restaurant ware, became the first firm in the industry to bypass all intermediaries and sell directly to the final consumer. Retaliatory action by dealers and wholesalers caused great difficulty for the firm in the first year of this strategy but thereafter receded and success continued to intensify for this already vigorous firm (65). However, the firm was greatly aided in the implementing this strategy by the fact that they were already dominant in a market in which the final consumers, though still very numerous, were far fewer in number than those for common tableware. Their example was of limited relevance to other firms striving to strengthen their market position. While Dunn, Bennett and Co. had developed a sophisticated marketing strategy the majority of firms in the industry were less favourably placed to innovate new marketing strategies. What were the consequences of this constraint?

Without intermediaries the industry would undoubtedly have been unable to reach the many thousands of retail outlets serving its dispersed and heterogeneous markets, but buyers, exploiting the highly competitive structure of the industry and aided by the pressure placed on firms by seasonality, found themselves able to dictate terms. Furthermore, the spatial clustering of the industry could create a sometimes feverish atmosphere and rapid if not always accurate flows of information about the orders gained and the prices accepted by competing firms. This situation allowed dealers to play one firm off against another and was exacerbated by manufacturers' short-term needs for cash. These conditions did not impact only on the small manufacturers most reliant on visiting buyers. 1885 was felt to have been notable because whilst 'the very best houses have been phenomenally slack, the small producers....have been able to keep their ovens going regularly'. A twofold cause was identified.

These smaller makers have a decided advantage over the larger.... Their expenditure, in comparison, is so much less and as a rule the labour they employ is cheaper if less efficient. Most of them are obliged to turn over money quickly, and hence it is just now they get so well patronised by the ready money dealers. (66)

The same point was reiterated the following year, the trade press commenting that ‘We do not know of any industry that has been so much at the mercy of the ruthless “cutting” buyer for cash as the pottery trade. To small capitalists the temptation to turn over their money quickly has proved too strong’ (67). This situation was clearly related to the question of maintaining liquidity discussed in chapter 2. While smaller firms were exploited by buyers offering cash, others were squeezed by the tendency of dealers to insist on longer and longer periods of credit, it being noted in 1896 that ‘On every side one hears complaints of the scarcity of money, and the period of credit demanded by the home trade is ever displaying a tendency to increase’ (68).

The damaging impact on all firms of the leverage buyers had with small firms was not limited to the prices obtained. The activities of intermediaries also conflicted with quality oriented marketing strategies. ‘Mushroom firms’ were ‘reckless in their dealings, caring only to send out something, and to get ready money for it quickly’ not simply because of their financial weakness, the fact that they had ‘not much capital’, but also because they had ‘no good name to lose’ (69). In this context ‘premiums for neither creativity or skill could be captured reliably by manufacturers’, as was also the case in the American jewellery trade (70). Indeed, studies of other batch or fashion industries, such as those of the American jewellery and textile industries made by Scranton, are useful in enhancing our understanding of the marketing strategies employed by firms in the Potteries and function as a corrective to deficiencies in Moss’s theoretical exploration of the determinants of such strategies.

The example of the pottery industry in the late nineteenth century does much to support Moss’s theoretical discussion of the conditions favouring intermediated exchange. His stress on product differentiation, compactness and durability as further keys to understanding intermediated exchange are also useful. Consideration of industrial structure and concentration, turning on technological factors and operating leverages are also important, but Moss’s claim that ‘quality competition will result in segmented rather than unstable markets’ looks untenable in many historical situations. Mintons’ focus on quality had not exempted the firm from competition, and the role of goodwill as a positive ‘market relationship’ is perhaps over-estimated. Goodwill could prove fragile (71).

What is missing from ‘standard theories of how markets should work when there are many buyers and many sellers’ is consideration of the pressures induced by time constraints, such as seasonality, and geographical concentration (72). Many of the most damaging features of the exchange strategies prevalent in the Potteries, the failure to move to direct selling, vicious price competition and demands for ever longer periods of credit, were also to be found in other fashion industries such as jewellery and speciality textiles. Scranton concludes that ‘When 60% of a year’s trade is compressed into ten weeks, and makers are compressed into two pairs of adjacent districts, individual buyers can rule’. In particular, Scranton undercuts the traditional picture of the ‘district’ as an enabling factor and points to the possibility of a ‘negative agglomeration effect’ (73). Some industries were able to turn spatial clustering to good effect. At Grand Rapids in the United States expositions launched in 1878 by the furniture industry ‘gradually drew scores, then hundreds, of outside firms as exhibitors....and thousands of retail buyers as clients’. Eventually these ‘collective efforts by producers solidified direct selling, wrecked wholesaling, and facilitated collaborative price defences’ (74). In 1883 the Staffordshire pottery industry was being urged in the same direction

strike out at new markets, cut at foreign competition,
plan, scheme, and invent, bring out native talent by
offering prizes for new bodies, new glazes, new styles,
new decorations etc., organise a trades exhibition, make
it an annual affair, and great and lasting good will
undoubtedly accrue therefrom. (75)

However, as with many other calls for collaborative action in the Potteries in this period, the idea came to nought and markets continued to be characterized by demand that was, as shown in chapter 3, ‘both diverse and derived’ and which ‘firms could do little to affect’ (76).

6:3 Markets and Resources: Co-ordination.

The activities of buyers and dealers, bringing with them orders and information about markets, placed considerable demands on the resources and capabilities of firms. In particular the question of co-ordinating levels of demand and supply had to be faced and provision had to be made for some kind of design function. The need to match an unpredictable flow of orders to a difficult production process led directly to difficulties for many firms, especially over the issue of holding stock (77). For Mintons excessive stock at the London showrooms tended to become depreciated whilst reliance on producing to order led to slow delivery and loss of orders in some Continental markets. Generally, such difficulties may be said to have been rooted in the distance from markets created by indirect selling, exacerbated by poor flows of information within firms and the loose control exercised by management over many aspects of production, detailed in chapter 4 (78). Moreover, because it was often manufacturers that held stock it was they who incurred 'higher fixed costs....independent of the frequency of sales', particularly burdensome in the context of the industry's irregular sales patterns (79).

Nonetheless, it is clear that many firms in the Potteries did hold some stocks of their wares. Notices of bankruptcy often conveyed useful information, disaggregating the assets of the firm, of which stock very often represented a significant proportion. Furnivals, a large business making earthenware and grinding flint and other potters materials, failed in 1883. The stock held at two premises in Cobridge and Etruria was valued at £6,712, a little over 50% of the firm's total assets of £11,402. By way of comparison utensils and plant were worth £3,3401. A similar picture emerges from the failure of Edwin Bodley of the Hill Pottery, Burslem almost exactly a decade later. Again stock in trade, at £3,438, represented just a little over 50% of the firm's assets of £6,038. Bodley's plant and utensils were valued at only £1,170 (80).

Whilst the details of these firm's assets were captured as they failed, when we might expect to find holdings of unsold stock, it is clear that profitable firms also held some stock. The

prospectus for the registration of Dunn, Bennett as limited Company in 1899 contained a valuation of the firm carried out by Spencer Lawton, potters' valuer and chair of the new Board of Directors. Stock, at that time, was valued at £4,687, book debts at £6,863, investments at £275 and plant at £7,169. The books had been examined by P.H. Pope of Tunstall for the same prospectus and showed an average profit of £2,935 p.a. for the years 1896-1898 (81). That firms chose to and benefitted from producing for stock is less certain. In August 1880, in the face of a collapse of all but the American markets, without which 'there would be scarcely anything to do', the trade press reported that 'Those houses whose capital has allowed them have been adding to stock, and have resigned themselves to the fate of having to continue to do so' (82). Two points emerge from this comment. Firstly, adding to stock was clearly seen not as a chosen strategy but as one into which firms were forced by the state of the markets. Strategy was dictated rather than under their control; owners and managers were, in this context, unlikely to view producing for stock as a positive activity. Secondly, producing for stock was recognized as a capital hungry practice viable only for large firms. This was another reason why smaller firms, unable to hold substantial stocks, had to consider almost any order so as to maintain production and cashflow.

Why was producing for stock seen as a burden on the firm, its 'fate' during periods of slack trade? Though the storage of wares obviously demanded expenditure this attitude was also a reflection of the rudimentary nature of both the management control systems and book keeping practiced by many firms. Where trained specialists were absent these complex tasks fell to the proprietary capitalist. As late as 1900 complaints were being voiced as to 'the elementary conditions of book-keeping (in) the trade', these were such that it 'practically defied finding out....whether the manufacturers had made any profit or loss' (83).

Stocktaking was discussed in 1896 as though it were generally an innovation of quite recent origin.

Many firms have been taking stock, a custom which appears to be much more general than was the case a few years agoIt is to be feared that even now there are quite a considerable number of potters who think stocktaking a loss of time and money, or who carry out the work in a very imperfect manner (84)

Effective and efficient production for stock required that firms were able to marshall and co-ordinate two flows of information; the first concerned with the amount and, in an industry characterized by wide product ranges, the composition of stock held, and the second with the level and, again, the composition of demand in the market place. That all firms in the Potteries possessed the management skills and resources to control these flows, regardless of the quality of information supplied by buyers or agents, must be open to doubt. This task was also further complicated in the pottery industry for, as is suggested by Moss, where demand is either variegated and/or specialized then producing for stock may not be the best strategy, even if products display the qualities of compactness and durability identified by Moss as conducive to stock (85). Markets for fashion goods are not only heterogeneous in terms of taste, price and even cultural context, but are also subject to rapid change with time, sometimes occurring not on a yearly but on a bi-annual or even shorter cycle. Thus, demand in such markets, and with it the value of a product, was 'often time critical'. While it may be clear that such 'consumer goods mandated institutional flexibility rather than routinization, necessitating the articulation of structures and strategies appropriate to product-diverse manufacturing' the toll demanded of managerial energies and capabilities by such flexibility should not be under-estimated (86). Furthermore, not only did holding stock incur costs but unpredictable shifts in the market that left manufacturers with unfashionable stock could adversely effect the reputation of even a fashion leader.

There was then a dilemma in which the scant enthusiasm of the industry for producing for stock may be located. Holding inventories was a strategy into which they were sometimes forced by unpredictable demand but which at the same time was not wholly suited to the markets which they served. The contradictions between the inevitable need to keep some stock, the resources firms had to command in order to do so effectively, and the variegated structure of demand faced by the industry was captured in an article of 1886 entitled 'Changes in Pottery Art'.

On even a small factory now the patterns, shapes, bodies and colours grow in number with amazing rapidity, and it is next to impossible for the potter to keep of them a large stock, supposing that it would be a judicious thing for him to do so. (87)

The penalties for failing in this difficult feat of co-ordination could be considerable. If stock levels were allowed to grow too large then they could impose an unjustifiable financial burden and, as was made clear in the study of Mintons, in a fashion industry ageing stock quickly becomes impossible to sell at anything but discount prices. Some evidence of these problems may be gleaned from the example of Davenport and Co. Ltd., where the value of stock held grew steadily in the final years before bankruptcy in 1887. In the financial year 1881-2, during which a gross profit of £6,997 was made, the value of stock held at the factory in Longport was £8,814 and at the Liverpool warehouse £8,828. In 1883 a much smaller profit was made but the value of stock at both the factory and Liverpool had risen to over £10,000. In both 1884 and 1885 substantial losses were made and the value of stock held at Longport continued to rise, first to nearly £12,000 and then to £13,359. This pattern of rising value of stocks held was probably more symptom than cause of the firm's difficulties, but there can be little doubt as to the burden it must have placed on an already struggling firm, and suggests a management unable to co-ordinate supply and demand at a critical time, the firm 'chasing (its) tail in a downward spiral' (88).

Conversely, if stocks fell too low and reliance was placed on producing for order difficulty or slowness in fulfilling hard won orders may have discourage customers or run the risk of incurring financial penalties, a problem that goodwill can only do so much to overcome. Moss suggests that 'firms producing to order', as all pottery firms at least attempted or aspired to do, require a strategy for absorbing variation in demand and avoiding either the inability to complete orders or resources lying unoccupied, a possibility that was shown in chapter 4 to be worrying the industry as fixed capital intensity increased with mechanization. This absorption of uneven demand can be achieved by firms queuing 'their customers, so that the length of the queue (or order book length) takes up any seasonal or cyclical

variations in demand' (89). This though, like producing for stock, imposed considerable demands on managerial resources, demands firms were fully aware of in the nineteenth century and for which they were perhaps no better prepared. It was noted in 1894 that activity seemed to be increasing in the industry, provoking the following comment, 'The general feeling throughout the pottery districts is that continued efforts at production must be put forth, or with the approaching expansion of colonial markets the orders will be kept on the books too long, and may drift in to other channels' (90). Again, evidence from the pottery industry supports that from other batch and fashion industries. Scranton says of batch producers as a class that 'holding final goods was avoided', and elsewhere goes so far as to claim that firms in the Philadelphia textile trade had a 'horror of running stock' (91).

6.4 Markets and Resources: Design.

The role and costs of design in relation to business strategy also need careful consideration. Design historians, with a good understanding of the design process but often conditioned by the negative reactions of the Cole group and of Ruskin and Morris to the Great Exhibition of 1851, and with insufficient knowledge of the conditions and constraints under which businesses operate, have tended to be critical of the standards of design prevalent in British consumer and fashion goods industries of the nineteenth century. Their thinking may be considered a sub-clause of the entrepreneurial failure thesis; British businessmen were crass and uncultured and paid little attention to either aesthetic developments or the role that design might play in selling their goods (92). In the past wary business historians, with exceptions such as that of Chapman on printed textiles, have likewise tended to steer clear of the subject of design (93).

More recently, though, recognition of the importance of the design process has begun to figure in studies of fashion industries, and is also important in Sabel and Zeitlin's notion of flexible specialization. Sabel and Zeitlin define flexible specialization as 'the flexible use of multiple-purpose or universal machines and skilled labour to make an ever changing assortment of semi-customised products'. They ascribe to it attributes such as efficiency, lack of rigidity in process and product development, and technological dynamism, all leading

to enhanced responsiveness. However, they do little to explore the extent to which individual firms are able to realize that flexibility (94). In terms of its implications for marketing they argue that flexible specialization is an advantage where industries, such as pottery, serve 'highly differentiated' markets that demanded products be 'constantly altered' (95). Their work argues that flexible specialization enables industries and individual firms to respond to and benefit from fashion led markets, seeking out and exploiting pockets of and shifts in taste.

Firms in the Potteries did show an interest in attempting to do this, but it is not clear that they 'revelled' in satisfying highly variegated demands, as Tweedale claims Sheffield cutlers did (96). Despite the apparently standardizing direction in which production processes were beginning to trend it was recognized that attention had to be paid to the demands, needs and tastes of particular markets. It has already been shown that Staffordshire potters conceived of the 'American notion of fine effect' as a predilection for things made with mechanical rapidity and exactitude. This rather blunt characterization of the early 1880s also had an aesthetic dimension, 'Bright colours, odd shapes, peculiar decoration, are the things most eagerly sought for by the Transatlantic cousin' (97). By the 1890s though, as competition increased, it was no longer wise to patronize so important an export market and this caricature of American vulgarity was being replaced. As a token of this it was noted that 'A good sign from the United States is a growing demand for more expensive goods, which speaks eloquently of increased purchasing powers in that country' (98).

What, though, are the resources and organizational qualities firms require in order to gain sustained advantage in constantly changing and heterogeneous markets? What are the costs and how great are the rewards? Sabel and Zeitlin do little to answer, or even ask, these questions. Instead, encouraged by their focus on regions and districts, they search for an enabling 'institutional framework' supportive of flexible specialization at these levels and not at that of the firm. Certainly, as will be shown, design provision and capability was subject to some specialization by firm in the Potteries, but still the question of the demands placed on individual units by flexible specialization and the particular relationship with the market that it fostered remains largely unaddressed.

The need to tailor products to particular destination markets was also overlain by a general, restless striving after novelty further supplemented by the need to respond to historic events, such as Queen Victoria's Diamond Jubilee in 1897 (99). The market was seen as insatiable for novel products and effects, to the extent that constant, though often very superficial and purely decorative, product innovation was seen by some as being of greater importance to the future of the industry than process innovation. At the height of a depression in trade in 1883 manufacturers were advised that it would be better 'to spend their money in preparing fresh novelties for the spring trade instead of pushing out in other directions for unremunerative orders' (100). In the early 1890s it was felt to be of some concern that 'Nothing startling in the way of novelties....has made its appearance during this year....the general conditions of business tend to eliminate originality' (101). The responses of both individual manufacturers and the industry as a whole to this search for fresh products and designs were also regularly commented upon in the trade press. The 'Buyers Notes' pages of The Pottery Gazette allowed not only for very extensive presentation to the readership of the new wares, ranges and designs of individual firms but also acted as a forum for the commendation of their artistic energies and successes. The 'Trade Notes' permitted a rather more generalized overview of the state of design throughout the industry. This was seen to be variable. It was noted in 1889 that:

progress continues to be made by our potters in their production. All along the line they are busily engaged in introducing new goods, not only of fancy or ornamental kind, but likewise of a useful and general kind. Latterly attention has been paid to form as well as to design. (102)

However, in January 1893 it had to 'be confessed' that 'in the matter of decoration our productions, though steadily improving, are not always of such a character as to command the market' (103). The most frequent charge, and one with considerable validity, was that design in Staffordshire tended to be imitative and hidebound (104).

In what way was this novelty generated? A qualification needs to be introduced at this point. In many instances in the late nineteenth century the term 'design' retained the extremely limited meaning mapped out during the earliest stages of industrialization, when both the continuity of traditional aesthetics were disrupted and the unified tasks of conception and execution were separated by new productive processes and new forms of work. A vacuum came into being in the process of making things and the task of formulating the methods whereby the form and function of the products of industrial production were to be arrived at had to be worked through. The problem was a fundamental one. The very role of industrial design, its scope, ambitions, approaches and the training of its practitioners, had, in effect, to be invented. This innovative process occupied perhaps the whole of the nineteenth century. In the mean time the vacuum was filled by a far more circumscribed conception of design as the application of 'art' to the surface of an object. This understanding of design was perhaps first expressed in the report of Ewart's Select Committee on Art and Manufacture of 1836 and then perpetuated in the system of provincial branches of the Normal School of Design that it spawned (branches were established in Hanley and in Stoke in 1847 and in Burslem in 1853). It was thus a preoccupation with surface decoration to which many potters referred when they spoke of design and which governed their conception of the role of design within their business (105).

Design provision in the pottery industry was highly variable. The largest firms were able to employ artistic directors charged not only with the production of designs themselves but also with the co-ordination of the work of a design team (106). It is interesting that the most prominent amongst these men in the late nineteenth century were, almost without exception, foreigners. At Mintons Arnoux, Boullemier and Solon were from France and Jahn from Germany, indicative perhaps of a lack of confidence not in the potting skills of the natives of the district but in their artistic sophistication (107). It was hoped by Mintons that the employment of these men would bring prestige to the firm and it is significant in this respect that both Boullemier and Solon had come to Staffordshire from the renowned factory at Sevres. Mintons was clearly a progressive firm in the area of design, senior design personnel, and with them design itself, being integrated into the management and governance of the firm. Wedgwoods, continuing a strategy developed by Josiah I in the late eighteenth century,

also worked with a series of prominent designers, such as Christopher Dresser, Walter Crane, and William de Morgan (108).

However, such formidable artistic teams could be recruited and maintained only by the very largest manufacturers. For the rest of the industry design input had to be managed through a variety of means involving both direct employment and contracting out (109). The majority of manufacturers employed decorators, who either hand-painted, gilded or applied lithographic transfers to wares, and many of these people, both men and women, fulfilled in the rather circumscribed way described above some of the functions of the designer. Indeed, work in the decorating shop was the most common form of design training in the Potteries and the most frequently travelled path to work as a designer. Young painters and paintresses graduated from the simplest tasks, executing the designs of others, to positions of greater responsibility which included possibility of producing new designs.

However, the position occupied by the majority of in-house decorators remained ambiguous at best, though often considered rather superior by other workers they certainly remained shopfloor employees and not management (110). The uncertain and incomplete separation of the rather different roles of designer and decorator in the pottery industry indicates not only a hesitant commitment to the commercial importance of a planned and progressive design policy but was also likely, in conjunction with on the job training at the hands of older workers, to result in a great deal of imitative design which built only slowly on traditional forms and patterns. This process was reinforced by the existence of lively second hand markets, evidenced by advertisements in the trade press and local newspapers, in design tools such as moulds and copper plate engravings, on occasion decades old. Such design strategies would have been attractive to the small and increasingly burdened management typical of many pottery firms at this time and complemented the loose control exercised by managers over other areas of the work process.

It is also clear from the evidence of an ancillary industry of independent china decorators, copper plate engravers and modellers contained in rate books and trade directories that some design work could be take place outside the manufacturing firm. However, this ancillary

trade was more artisanal than artistic in background and temperament; practitioners were typically trained in a manual craft rather than in aesthetic considerations. Independent decorators, engravers and modellers were often either individuals or one or two family members operating from their residential address and displaying poor survival rates (111). Their work did not correspond to that of the modern design consultancy and was largely reactive in nature, furnishing manufacturers with quick and cheap copies of currently fashionable styles and patterns. A few stood out from this general picture, perhaps none more so than the consultancy of Bernard Moore, whilst a few manufacturing firms, such as the Stoke firm of Robinson and Leadbetter, explicitly advertised themselves as designers as well as makers but these examples were exceptional (112).

In the majority of cases then the task of co-ordinating the design strategy of the firm did not fall upon trained specialists but was instead another of the responsibilities of the general management. Management in the Potteries was perhaps equipped to understand the technicalities of potting, but not wider contemporary issues in the theory and practice of design (113). Moreover, even the forms of design provision described here incurred costs and seemed to be of uncertain effectiveness in commercial terms. A review of 'A Year's Potting' in December 1880 noted that 'The result of the persistent demand for something novel has been an increased cost of manufacturing, reaching, in some cases, a considerable amount' (114). The constantly shifting demands of highly variegated markets, to which Sabel and Zeitlin tie the vitality of flexible specialization, were seen, in the absence of the necessary resources, as draining and fickle. The costs involved were twofold; direct costs were incurred through the wages paid to designers and decorators, amongst the most highly paid members of the workforce, and opportunity costs for management arising from the need to devote time to the monitoring of information from the marketplace. This sense of frustration with a fashion led consumer market is clear in a quotation from 1886.

Beautiful as were many of these patterns, the public taste was too fickle to be satisfied with them for any length of time...Our modern potter has to speculate largely. If he hits the market he may have a run with a certain article or class of goods, and make a good return. But this is not so often done as may be imagined. (115)

If Sabel and Zeitlin underestimate the costs involved in serving fashion/consumer markets then they perhaps also overestimate the competitive advantage firms derive from the attempt to keep up with fashion. This problem was exacerbated in an environment of tightly clustered firms, many utilizing similar derivative design techniques or the same external design sources. These conditions made differentiation an elusive quality for all but the most prestigious firms. Thus, the nature of design provision in the Potteries fed back into and reinforced fears of standardization, declining quality and reduced originality rooted in the process of mechanization. Fashion was seen in the pottery industry as a fairly superficial commodity unlikely to lead to significant and lasting advantage (116).

The emphasis on quality in the marketing strategies of many firms, it has been argued, was related to their resource bases, but the relationship between resources and attitudes to design is less clear. The poorly developed design capabilities of most firms, the lack of confidence and innovation in design displayed, and the distrust of the vagaries of fashion seem to contradict the emphasis on quality in the marketing strategies of many Staffordshire firms. To a very great extent the emphasis on quality referred to the actual making of a firm's wares rather than their design. In contrast, uncertainty over design, its worth and how it should be approached, arose from the concrete experience of trying to adapt to the vagaries of markets. In other words, the notion of 'quality' was largely related in a fairly narrow sense to production rather than to any wider concept of the product. The quality of a ware was largely an expression of the standard of the production process and materials employed, and was less dependent on its design (117). Central to this understanding of 'quality', which did have a legitimate basis in the human resources of most firms, was a constructed image of the Potteries and its products, built out of and rich in historical resonances. Both the origin and the effect on business behaviour of constructs of 'the Potteries' will be discussed further later in this work, but introducing the concept now signals the need to clarify the relationships between factors such as flexible, skill dependent technologies, physical clustering, variegated and changing demand, and the performance in the market-place of firms with such characteristics. These relationships had cultural as well as economic or

technological dimensions. The conception of 'quality' prevalent in the Potteries may be considered an example of those 'collective subjectivities' identified by Casson (118). Potters' statements of pride in their products arose from the 'internal perception of the history, distant or very recent, of the enterprise' and of the district (119).

6:5 New Markets.

The strategy of market diversification was largely induced by increased foreign competition in existing markets both at home and abroad, intensified in places by the imposition of tariffs. Though the increasing capacity of the domestic industry had its part to play in stimulating this process the role of competition was clearly recognized at the time.

To our colonies British traders have for several years now directed their attentions, and the reason for their doing so is to be found in the severe competition to which our trade has been subjected from the action of the leading Continental producing nations, France and Germany more particularly and also from their endeavours to extend their colonies abroad. (120)

It was then to the British Colonies and the Empire that potters most readily turned in the search for new and less competitive markets. Other British industries involved in a significant export trade displayed a similar response at this time (121). The charge that this was a 'soft option' that declined the challenge of enhancing British competitiveness in 'harder', traditional markets has been levelled many times and forms one of the cornerstones of the thesis of late nineteenth century entrepreneurial failure (122). The damaging effects of viewing the Empire as a safe haven for British goods may be said to have been twofold. Firstly, for a variety of reasons, Imperial markets showed insufficient elasticity to replace those of a country such as North America. In short, the Empire was overestimated. Secondly, because they were allegedly less competitive, Imperial and Colonial markets acted to retard resource development and restructuring in British industry.

Certainly examples of remarkable sanguinity may be found in the pages of the trade press. One example is the claim that 'Looking to the vast extent of our Colonial Empire, it is only natural that the traders of this country should feel confident as to the commercial relationships of the future'. There was also mealy-mouthed talk of the need to 'impress upon those colonists the mutual advantage which will arise by extension of the principle of reciprocity' (123). However, both contemporary statements such as these and recent, problematical aggregate calculations of the costs and gain of Empire tell us very little about the actual behaviour of businessmen in relation to Empire. Did new markets replace or supplement old in the strategies of firms (124)?

Evidence presented in chapter 3 clearly contradicts the notion that a switch to Colonial and Imperial markets necessarily implied a concurrent abandonment of the traditional 'hard' markets of Continental Europe and North America (125). Trade with nations such as France and Germany continued to be both worth far more than that with India, the focus of Empire, and marked by greater growth. It was in these 'hard' markets that consistent growth in the value of British ceramic exports was to be found as the century closed. These figures were fed back to the industry via the trade press, allowing clear and ready calculations to be made of where exports were holding up, where their value was greatest. Such figures made clear the disparities that existed between different Imperial markets and other foreign markets, new and old. It was obvious, for example, that India, valuable to capital goods industries, steel rail and locomotives for example, and to manufacturers of cheap cotton cloth, was not, in its existing state of development, a dynamic market for fashion/consumer goods. Expressions of a belief that 'As long as the Australian farmer or Indian Ryot is willing to grow fruit or corn in exchange for crockery....it is idle to talk of over production' should not be mistaken for strategy (126).

Furthermore, although it may have been true that India was worth far less to the Potteries than either of the districts principle European competitors, Germany and France, it was equally true that the German and French markets were themselves either worth less or were equivalent to those of the Argentine and Brazil respectively, two non-Imperial markets. Market diversification must not be identified solely with Imperial and Colonial trade (127).

It also needs to be specified in what way Imperial and Colonial markets were 'soft'. Few were closed to the goods of Britain's competitors and all were characterized to some degree by distance, geographical, cultural, and linguistic. Local infrastructures, from transport to banking could be underdeveloped and unreliable. Effecting improvements in these areas was largely beyond the scope of individual firms, or even industries, and it was felt that the machinery of Empire had long grown distant from its mercantile roots. Thus, the trade press complained that 'Unless a better (shipping) service is provided it will be impossible for English manufacturers and merchants to develop and hold the Colonial....markets', or boasted in an implicit attack on the energy of central government that 'if it had not been for the actions of....trade journalism, out of which has arisen a closer assimilation of the interests of Great Britain and her colonies, the welfare of the latter would have been neglected' (128). Of course these were not problems restricted to the pottery industry. Nor can it be assumed that the 'so-called Imperial policy' was universally recognized by manufacturers as an escape from their difficulties. Contemporary criticism could be fierce; one commentator argued that it was a 'vain effort', the 'niggers of Africa' being too 'uncivilised', the Chinese 'unwilling', and 'our diplomatists will not risk a quarrel with Germany on the question of a concession for pudding bowls' (129).

The timing of the heightened interest in Imperial and Colonial markets shown in the Potteries is of some interest. In 1830 a meeting of the 'members of the Chamber of Commerce, and of other manufacturers, in the Staffordshire Potteries' had called for 'the removal of the restrictions affecting the commerce betwixt this country and British India' in the belief that do so 'would open up to our Manufacturers a market capable of increasing and almost boundless cultivation' (130). In 1884 it was urged that 'If the larger potters, whilst maintaining their prestige, will seek to open up new markets they will do more for the future of the potting industry than any amount of capital and labour expended on the old markets can possibly do', but these were isolated calls and the issue did not really come to the fore until the 1890s (131).

In the trade press in the 1880s the most heated debates were those surrounding the issue of mechanization, its progress, advantages and disadvantages. In the 1890s discussion of these issues was more settled and the question of markets, and in particular new markets, came to the fore. Clearly the search for new markets was related not only to the rise of foreign competitors but also to an increase in the capacity of the domestic industry through mechanization. However, mechanization and market diversification occurred largely sequentially, rather than concurrently. Incomplete mechanization had caused the industry in North Staffordshire difficulties in co-ordinating supply and demand but had not enabled firms to compete with Continental manufacturers on price (132). Thus, there is evidence that some commentators did view Colonial markets primarily as outlets for surplus capacity. Comparative technological retardation, as a feature of the British ceramic industry, preceded and acted as a further spur to market diversification. Thus, the search for new markets, as with the persistence of quality oriented marketing, owed as much to the uncertainty inducing effect of the gradual and partial process of mechanization in North Staffordshire, as to the rise of foreign competition.

This chapter has demonstrated that the marketing strategies of firms in the Potteries were influenced by a range of factors; the size, structure, resources, and culture of firms, the characteristics of the products they made, the diverse markets they served, and the existence of a well established and specialized system of distribution. Some of these factors conflicted. Industry structure and resources, compounded by uncertainty and a craft consciousness, made it difficult for firms to compete on price or volume or to integrate forward. Intermediated exchange, however, made the maintenance of premium prices difficult, was not always sympathetic to differentiation, and could endanger claims as to the quality of Staffordshire wares. At the same time the rise of foreign competition was beginning to reshape international, and even domestic markets in ways many in Staffordshire were suspicious of. Individualized priorities worked against collaborative action that might have built either more integrated networks for marketing and distribution or defended prices. The majority of firms were too small to build such networks themselves and too weak to resist the demands of buyers. Thus, they found, as did many firms in other speciality industries, that 'marketing was the weakest link in their struggle to create a surplus' (133).

That the North Staffordshire pottery industry was apparently 'committed to selling traditional goods in traditional markets', and that it was 'even further behind the times in her selling methods' than in productive processes, cannot be ascribed then simply to managerial shortcomings. Both Aldcroft, in pressing the charge of entrepreneurial failure, and Chandler, in claiming that it was personal capitalism which prevented British firms from making vital investments in marketing, have taken insufficient account of the 'economic and institutional context', which 'must be borne in mind when evaluating the quality of entrepreneurship' (134). It has also been shown that success and innovation were far from unknown. Dunn, Bennett and Co. moved towards full forward integration whilst others, including the Empire Porcelain Co., Copelands, and Mintons, developed systems of direct representation by agencies. Some firms then 'proved capable of challenging....a given set of constraints' (135). Moreover, the claim of 'Made in Staffordshire' retained much of its cachet, and was as important to many firms as their individual name or brand markings. That this was so urges consideration of business structure and culture at the level of the district, and it is to that task this work will now turn.

NOTES AND REFERENCES.

1. Kirby, 1992, p.638.
2. Church, 1996, p.581.
3. The Pottery Gazette, March, 1894, p.250.
4. Aldcroft, D.H., 'The Entrepreneur and the British Economy, 1870-1914' Economic History Review, XVII, (1964), p.126.
5. Kirby, 1992, p.640.
6. Kirby, 1992, p.642.
7. French, 1993, p.247.
8. Porter, 1990, p.120. Porter notes that, as will be shown was the case at Copelands that 'differentiation strategies grow out of the coordinated actions of all parts of the firm, not just the marketing department', p.119. Perhaps the most prestigious of the Art/Studio Potteries were those attached to Mintons and Doultons. However, Wedgwoods had since the late eighteenth century blended large-scale production of cheaper lines with limited runs of more expensive items and even one-offs, such as the replica Portland Vase.
9. Typical in this respect was Minton's Secessionist Ware, designed by Leon Solon, launched in 1902 and imitative of the work of the Vienna Secessionists such as painter Gustav Klimt. The Art or Studio potteries were also undoubtedly influenced by the Arts and Crafts Movement. However, the trade press was also generally hostile to Morris and his teachings. Thus, in March 1883, The Pottery Gazette added a fifth 'canon on the hand making of pottery' to the four Morris had suggested; 'Finally, when you have asked for these qualities from the potters, and even, in a very friendly way, boycotted them a little till you get them, you will of course be prepared to pay a great deal more for your pottery than you do now, even for the rough work you may have to take. I'm sure that won't hurt you, we shall only have less and break less, and our incomes will still be the same', p.268. Clearly, there was a limit to the craft culture of the Potteries.
10. The Pottery Gazette, January, 1886, p.3.
11. Stuart, 1985, p.66. Moreover, it was noted in 1879 that whereas Mintons 'might sell staple goods, as dinner sets....these were purchased almost exclusively by the aristocracy; their goods did not the place of other manufacturers in the shops.... Copelands were virtually their own retailers in London', Burchill, & Ross, 1977, p.127. Further evidence of Copelands use of direct agency representation is contained in the report of Currall and Strasser, Mintons' German agents, of 1902. Currall and Strasser found that one firm in Hamburg, previously a customer, 'now confines its business in English goods as far as possible to....Copelands for whom they act practically as agents' MMS. 1331.
12. Stoke-upon-Trent Borough Rate Book, 1879-1898. The firm, which had always given 'top priority....to maintaining the high quality of its products. This continued to be the very essence of the companys policy and the reason for its continuing high standing in world markets', was acquired by the American Carborundum Ltd. in 1966 and from 1970, still occupying the site of the original 18th century factory, resumed trading as Spode. Gay & Smythe, 1974, p.86-8.
13. The Pottery Gazette, November, 1896, p.132.

14. Farnie, 1979, p.193-4.
15. Hanley Borough Rate Book 1882 and Keates and Ford's Directory of the Staffordshire Potteries and Newcatle-under-Lyme 1882, E.N.W. Bennett 'The Origin of the Bennett Family of Grove House, Cobridge', Privately printed pamphlet 1976.
16. Hotel-ware catalogue of Dunn, Bennett and Co. c.1890 & Dunn, Bennett & Co. advertisement c.1898-9.
17. Dunn, Bennett & Co. advertisements, c.1910 & c.1900.
18. Dunn, Bennett & Co. advertisement, c.1898 , catalogue, c.1910.
19. Quotation from 'The Caterer' 16 April 1895 carried in Dunn, Bennett & Co. advertisement, c.1898-9.
20. Dunn, Bennett & Co. advertisement, c.1910
21. Quotation from 'The Caterer and Hotel-keepers Gazette' 15 May 1909 carried in Dunn, Bennett & Co. advertisement, c.1910.
22. The Pottery Gazette, August, 1898, p.1003.
23. Ibid. The Empire Porcelain Company was acquired by Qualcast in 1958 and closed in 1967 after it had failed to yield adequate profits. Gay & Smythe, 1974, p.48.
24. Ibid.
25. Ibid.
26. Dunn, Bennett & Co. catalogue, c.1900.
27. The Pottery Gazette, April, 1899, p.459 & July, 1896, p.538.
28. Aldcroft, 1964, Kirby, 1992, Elbaum, & Lazonick, 1986.
29. The Pottery Gazette, November, 1900, p.1248.
30. The Pottery Gazette, January, 1886, p.41. It was also noted that in the future 'profit will not so much depend on the produce of a few articles, but upon the many. On the other hand the manufacturer who depends solely on hand production will find it next to impossible to compete with his neighbour who may use machinery. The small manufacturer and limited capitalist will not in the future be able to devote his attention so much to general goods as to specialities' The Pottery Gazette, July, 1885, p.783. Clearly their size had not hitherto precluded small firms from entering general markets.
31. Kirby, 1992, p.638 & p.639, Scranton, 1989, p.73.
32. The Pottery Gazette, June, 1895, p.440.
33. The Pottery Gazette, July, 1894, p.575.
34. The Pottery Gazette, November, 1882, p.1032.
35. The Pottery Gazette, September, 1885, p.1074 & September, 1881, p.783. The patent jollies of leading potters' engineer T. Willett were described as making cups 'both solid and regular' but, more importantly, their use would ensure that 'the trade will be certain of the quality of the manufacture, and a confidence will result'. The Pottery Gazette, March, 1884, p.395.
36. It has already been argued that simple core/periphery models often have little fit with the nineteenth century pottery industry.
37. The Pottery Gazette, September, 1896, p.809. This information was carried in one of a series of occasional biographical portraits entitled 'Trade Veterans'.
38. Pye, D., The Nature and Art of Workmanship, 1968, p.4.
39. Ibid., p.5-7.
40. French, 1993, p.247.
41. Pye, 1968, p.6-7.

42. The Pottery Gazette, May, 1888, p.430.
43. French, 1993, p.247.
44. Coleman, D. & Macleod, C., 'Attitudes to New Techniques: British Businessmen, 1800-1950' Economic History Review, XXXIX, 4, (1986), p.594. In contrast Aldcroft seems to exempt the pottery industry from the charge of entrepreneurial failure, claiming that 'there was hardly a basic industry in which we held technical superiority except perhaps pottery' Aldcroft, 1964, p.117. His conclusion is however drawn from a comparison with only the American industry and has limited meaning.
45. Coleman, & Macleod, 1986, p.600, p.599, and p.598.
46. Ibid., p.603.
47. The Pottery Gazette, May, 1894, p.436.
48. Scranton, 1991, p.40.
49. The Pottery Gazette, June, 1882, p.542 & April, 1883, p.362.
50. The Pottery Gazette of August 1881 contains a typical advertisement for the Queens Hotel, Hanley which stressed the ease of communication its central position in the district conferred and was clearly intended to appeal to commercial visitors 'The Hotel is within three minutes of Hanley Railway Station, from whence 56 trains run daily to all parts of the POTTERIES of which HANLEY is the central and most important town', p.704.
51. Keates and Ford Directory of the Staffordshire Potteries and Newcastle-under-Lyme, 1865, 1882, and 1892. In Burslem in the same year there were no agents but 6 china and earthenware dealers, 3 in Fenton, 7 in Tunstall, and neither agents or dealers in Longton.
52. Report of the re-opening of the North Staffordshire Exchange on 6 January 1875 from Sentinel, Newspaper Cuttings, Vol.4, p. 142, H.B.R.L.
53. In other words, though there was economic logic in the origins of the organization of distribution other factors must also be taken into account. Lazonick argues that though Coase's notion of 'substitution at the margin' brought the 'theory of vertical integration within the theoretical scope of neoclassical economics' it is 'as a fundamental proposition for analysing the nature and development of modern capitalist enterprise.... highly misleading'. Firstly, it assumes the profit maximization motive, rarely tenable in historical terms. Moreover, the model ignores the many hidden costs of a firm shifting 'its more of operation with every change in relative factors prices'. Lines of contact, communication, and goodwill cannot be readily broken and reformed at will. Elbaum, & Lazonick, 1986, p.40.
54. Wilson, 1995, p.91.
55. Moss, 1981, p.137.
56. Wilson, 1995, p.91.
57. Moss, 1981, p.103.
58. Interview with Peter Bennett, 2 September 1996.
59. Wedgwoods strategies have been examined by many. See, McKendrick, N., 'Josiah Wedgwood and Thomas Bentley: An Inventor-Entrepreneur Partnership in the Industrial Revolution' Transactions of the Royal Historical Society, January, 1963, 'Josiah Wedgwood: An Eighteenth Century Entrepreneur in Salesmanship and Marketing Techniques' Economic History Review, XII, 3 (1960). Wedgwoods marketing techniques included London showrooms, catalogues, keeping abreast of

artistic fashion, the employment of leading artists, and, perhaps most effective, carefully solicited patronage of the aristocracy and royalty. This patronage was then deployed in the advertising and branding of ware, the mid-range 'Queensware' services being the most prominent example.

60. Lockett, T.A., Davenport Pottery and Porcelain, 1794-1887, 1972, p.27.
61. The North Staffordshire potteries did in the twentieth century begin to towards forward integration, particularly in the domestic market. Gay & Smythe note that 'Whereas before 1939 manufacturers sold most of their output to wholesalers who, in turn, sold to retailers, now manufacturers sell the greatest part of their output to retailers. The change reflects in part the higher degree of concentration in retailing as compared to pre-war'. However, they also found that 'Pottery firms normally appoint import agents to sell their wares in the various markets abroad'. Nonetheless, it was 'rare for a manufacturer to believe that an agent is doing as good a job as he would do himself. Markets are normally developed by agents; then, if the scale of operations justify it, the exporter will establish his own warehouses, showrooms and salesmen in particular markets. This can only be done by large firms with substantial foreign markets' Gay & Smythe, 1974, p.132 & P.156-8. Nicholas, 1986, notes just such a process of using agents to establish markets as precursor to direct selling.
62. Interview with Peter Bennett, 2 September 1996.
63. Lockett, 1972, p.30.
64. Ibid.
65. Interview with Peter Bennett, 2 September 1996. See Scranton, 1991 for detail of similar actions in the American jewellery industry.
66. The Pottery Gazette, November, 1885, p.1426.
67. The Pottery Gazette, January, 1886, p.40.
68. The Pottery Gazette, September, 1896, p.714.
69. The Pottery Gazette, January, 1886, p.40.
70. Scranton, 1991, p.83-4.
71. Moss, 1981, p.86-7 & p.84.
72. Scranton, 1991, p.84.
73. Ibid. Scranton also notes that in the jewellery industry 'Jobbers demanded punishing trade terms and played makers off against one another to enhance their advantages, whilst shopping interesting samples amongst small enterprises for "knock-off" quotes'. Again the blame was laid at the door of 'mushroom firms', thus the problem was in part structural, with the activities of jobbers further aided by spatial clustering, p.83.
74. Ibid., p.56.
75. The Pottery Gazette, March, 1883, p.263.
76. Scranton, 1991, p.55.
77. Nicholas places considerable stress on transaction frequency as a determinant of modes of organization in marketing and distribution, noting that where 'transactions were infrequent', as they were for the seasonally oriented pottery industry, intermediation, normally via a merchant house, 'remained the basic selling organization', overcoming the 'high information costs of transacting, allowing small manufacturers to compete in the international market' Nicholas, S., 'The Overseas Marketing Performance of British Industry, 1870-1914' Economic History Review, XXXVII, No.4, 1984, p.502 & 506.
78. Wilson, following Payne, argues that 'producers were rarely able to develop a close

- relationship with customers', 1995, p.90. Nicholas admits that the branch or subsidiary 'mode allowed better coordination and closer monitoring', 1984, p.501.
79. Nicholas, 1984, p.501. In March 1945 The Pottery and Glass Trades Review, commenting on an order for one hundred china tea sets in one hundred different patterns recently received by one firm, noted that 'every manufacturer knows that the only way to get such an order through is to decorate at least six sets of each pattern, thus leaving himself with five hundred unsold sets in his warehouse-quite a nice bit of his capital lying idle until orders arrive for these surplus sets', p.142-3.
 80. The Pottery Gazette, September 1883, p.855 & February, 1893, p.160.
 81. Registration prospectus of Dunn, Bennett & Co. 1899.
 82. The Pottery Gazette, August, 1880, p.400.
 83. The Pottery Gazette, October, 1900, p.1139.
 84. The Pottery Gazette, February, 1896, p.133.
 85. Moss, 1981, p.146.
 86. Scranton, 1991, p.29.
 87. The Pottery Gazette, October, 1896, p.1161.
 88. Lockett, 1972, p.30-1, Scranton, 1989, of the firm Schofield who, despite declining sales, 'still had to keep getting goods out to secure cash for wages and bills' p.163.
 89. Moss, 1981, p.146.
 90. The Pottery Gazette, December, 1894, p.973.
 91. Scranton, 1991, p.30 & 1989, p.8.
 92. The principle focus of design history has been the aesthetic dimension of design and the design process, with only limited consideration given to other factors. After the Modern Movement of the early twentieth century the nineteenth century appeared vulgar, a period which swept away the restraint and simplicity of Georgian design and the unaffected vernacular traditions alike. More recently other viewpoints, particularly that of feminists such Cheryl Buckley had done much to add complexity to the discipline.
 93. Chapman, S.D., 'Quantity versus Quality in the British Industrial Revolution: The Case of Printed Textiles' Northern History, Vol 21, 1985.
 94. Sabel & Zeitlin, 1985, p.133.
 95. Ibid., p.144.
 96. Tweedale, 1995, p.53. Tweedale further claims that cutlery manufacturers 'thrived on economies of flexibility and opportunism, tailoring their production to fill highly specific niches in the market', p.12.
 97. The Pottery Gazette, February, 1882, p.157.
 98. The Pottery Gazette, June, 1895, p.440. It was noted in 1889 that 'Care is now being taken by English potters to manufacture goods especially suited to the markets for which they are intended' The Pottery Gazette, June, 1889, p.425.
 99. The trade in commemorative wares of all kinds was a very important one, but could still prove a disappointment, as was the case in 1897 when it had to 'be confessed that on the whole the Jubilee year has been very much a failure from our trade point of view.' The Pottery Gazette, December, 1897, p.1404. Nicholas also notes that 'Since monitoring costs and transaction frequencies were market-specific, British firms used a mix' of different distribution organizations, 1984, p.501.
 100. The Pottery Gazette, September, 1883, p.855.

101. The Pottery Gazette, January, 1896, p.49.
102. The Pottery Gazette, June, 1889, p.425.
103. The Pottery Gazette, January, 1893, p.45.
104. Even the normally bullish Pottery Gazette conceded that 'The manufacturers of this district are unfortunately imitative instead of creative' in terms of decoration. August, 1881, p.665.
105. Local attitudes to schools of design seem to have been ambivalent. In September 1881 The Pottery Gazette asserted that though 'The establishment of schools of art in connection with manufactures is only of recent date in England,...the manner in which all classes have aided and supported the various schools of design and mechanics institutions shows that the nation appreciates the value of cultivating manufacturing art', p.767. However, in January 1896 a writer in the same journal argued that 'schools of design....have not educated the workmen, nor even the masters', p.47.
106. For details of design teams see; Buckley, C., Potters and Paintresses: Women Designers in the Pottery Industry, 1870-1955, 1990. It is significant that even in Buckley's work, which explicitly aims to reclaim previously ignored or marginalized areas of history, evidence is drawn again and again from the same few famous firms. Indeed, the anonymity of the majority of designers in the industry is acknowledged by Buckley on p.57.
107. Short biographies of these and other designers can be found in Stuart, 1985.
108. Buckley, 1990, p.72. See also McKendrick, 1960.
109. Both Rate Books and Directories suggest that there was a, rather small, ancillary design industry.
110. See Whipp, 1990 and Sarsby, 1988, for discussions of and evidence relating to skill based hierarchies within the Potteries workforce
111. Atypical was the survival of Henry Toft, a copper plate engraver, from 1886-1899. In 1886 he and his business occupied a workshop and yard on Upper Cliffe Bank (RV £9) and a workshop and house in Thomas Street (RV £8), both Stoke-upon-Trent. His situation remained the same thirteen years later.
112. Moore was feted for discovering the ancient eastern decorative techniques known in the west as Flambe. He was in many ways akin to studio potters of the twentieth century, most famous of which was Bernard Leach, but, unlike them, Moore was born into and remained in the Potteries. He worked in the industry, both as an independent consultant, principally with Doultons at their Burslem laboratories, and as a manufacturer. Stuart, 1985, p.158-9.
113. A reminder of Casson's notion of the imperfection of the market for entrepreneurs
114. The Pottery Gazette, December, 1880, p.791. Similarly, Scranton notes in 'Figured Tapestry' that the return of Philadelphia textile firms 'to "striving...after new effects" increased their costs', 1989, p.154.
115. The Pottery Gazette, October, 1886, p.1161.
116. For example, 'There has been no striking novelty brought out by the trade this year. Fashion in pottery remains pretty much as in 1895....it is difficult to see where any absolute and valuable novelty is to be looked for' The Pottery Gazette, January, 1897, p.98.
117. As an example of this see the claim that though the 'decoration of our productions.... (is) not always of such a character as to command the market....For quality and

- durability Staffordshire productions will hold their own in any market.' The Pottery Gazette, January, 1893, p.43.
118. Casson, 1993, p.40.
 119. Kirby, 1992, p.642.
 120. The Pottery Gazette, 1889, p.729.
 121. Lewis, 1989, chapters 5 and 6.
 122. Aldcroft, 1964, Elbaum, & Lazonick, 1986, Coleman, & Macleod, 1986, and Kirby, 1992, for example.
 123. The Pottery Gazette, January, 1891, p.729.
 124. For a summation of shifts in Britains international trading position during this period see Kirby, M.W., 'Britain in the World Economy' in Johnson, P., 20th Century Britain Economic, Social and Cultural Change, 1994.
 125. See chapter 3 of this work.
 126. The Pottery Gazette, January, 1895, p.52.
 127. It was noted in 1895 that 'Of European countries, Germany and France remain our principal customers, and the amount of British crockery they require is much less than we require of them. Germany is, in fact, worth less to us than the Argentine republic, while France about equals Brazil'. The Pottery Gazette, January, 1895, p.5.
 128. The Pottery Gazette, January, 1892, p.43. An interesting illustration of such difficulties is provided by the example of the large firm Joseph Clementson and Sons, who specialized in the export trade. In a letter their Canadian representative complained of the "state of money". By this he was unlikely to mean just the lack of it but the lack of a comprehensive commercial system which facilitated payments'. Halfpenny, P., 'Joseph Clementson: A Potter "Remarkable for Energy of Character"' Northern Ceramic Society Journal, Vol 5, 1984. Similarly, in January 1892 manufacturers were warned, given the 'unsettled state of the South American Republics', to be 'on their guard before sending out goods to these countries until they can be reassured about the payment.' The Pottery Gazette, January, 1892, p.43.
 129. The Pottery Gazette, July, 1899, p.833. This writer was well aware of the heterogeneous nature of the Imperial markets and believed that the only good prospects lay 'with our civilised colonies, Canada, Australia, South Africa'.
 130. The Staffordshire Advertiser, 27 February, 1830.
 131. The Pottery Gazette, May, 1884, p.536.
 132. One commentator noted in 1893 that 'What we seem to need just now is a greater expansion of consumption, an expansion, in fact, somewhat in proportion to our increased and improved powers of production....We must never forget that our own Colonies have been our best customers' The Pottery Gazette, July, 1893, p.637.
 133. Scranton, 1989, p.135.
 134. Kirby, 1992, p.640 & p.642
 135. Kirby, M.W. 1992, p.640.

7: PATTERNS OF INTEGRATION IN THE POTTERY INDUSTRY: c.1860-1900

This chapter will explore the patterns of integration and inter-firm relations displayed by the North Staffordshire pottery industry during the second half of the nineteenth century. The chapter is informed by Scranton's proposition that

Where networks of partial process firms develop, external economies of scale may be captured while risks and costsare reduced through contracting relations, yielding a system of disintegrated production. (1)

In order to explore this proposition in the context of the pottery industry a dual approach has been adopted, focussing on both individual firms and the wider business system. In the first part, industry wide trends in patterns of integration will be analyzed. These patterns will be shown to have been highly variegated but marked by a clear trend towards greater disintegration. Any analysis of industry wide trends must proceed then from a reconstruction of the population of ancillary firms and from a comparison of this population to that of pottery manufacturers. Thus, it will be demonstrated that whilst integration could offer potential internal economies of scale to the very largest producers the disintegrated structure delivered to the majority of firms an important external economy.

In the second part, industry wide trends will be further probed via a case study of the firm of Jesse Shirley and Sons, an important supplier of bone and other key inputs to pottery production. Firstly, the development of this firm will be positioned within the parameters provided by industry wide trends and, secondly, those wider changes will be clearly related to changes in the day-to-day business activity of the firm. It will be argued that as adverse changes in the competitive environment impacted on pottery manufacturers many firms reacted by drawing yet more deeply on the district's disintegrated system of production rather than by introducing technological or organizational innovations. This reaction was reflected in the increasingly contingent behaviour displayed by Shirleys and its customers. Risk reduction and economies of flexibility were then perhaps even more important attributes of the disintegrated system than its ability to generate external economies. The

example of Jesse Shirley and Sons will also serve to emphasize the role of the family firm in the development and functioning of inter-firm networks in the nineteenth century.

7:1 Industry-Wide Trends.

The disintegrated system of production of the Potteries was rooted in the small-scale structure of pottery firms, the industry's low barriers to entry, often limited managerial resources, and small and informal sources of start-up capital. In particular, the size and relatively high fixed capital intensity displayed by many ancillary firms represented a clear disincentive to full backward integration for the majority of firms. Jesse Shirley & Son's RV in the 1870s and 1880s made them larger than many pottery manufacturers. If RVs are again used as a rough proxy for fixed capital investment it can be seen that not only were such firms often larger than many manufacturers but that they also displayed a higher fixed capital intensity. In 1882 Wedgwoods, at that time employing 723 workers, had an RV of £1,069, whilst in the same year Shirleys employed at most 30 workers, and often less, and had an RV of £375. That is Wedgwoods had a worker to RV ratio of 1:1.5 and Shirleys one of, at least, 1:12.5 (2). Though Wedgwoods did not by the 1880s represent best practice, investment in advanced production techniques having lagged at the firm, it is nonetheless unlikely that even innovative firms such as J. & G. Meakin would have equalled the worker/RV ratio seen at Shirleys. The high fixed capital intensity of many ancillary firms relative to the majority of manufacturers must then inform any exploration of patterns of integration in the industry.

However, some large firms had by the third quarter of the nineteenth century integrated the functions performed by Shirleys and other ancillary firms. Thus, as has been suggested, patterns of integration in the pottery industry were highly variegated and analysis of these patterns must be based in the reconstruction and comparison of populations of ancillary and manufacturing firms. A number of questions will arise from this reconstruction; what patterns of growth did the ancillary trades display? Why did some manufacturers choose to integrate whilst others did not? Why did some of those firms pursuing greater integration then appear to use integration as a platform for diversification, primarily into material

supply, in the 1880s? It will also be shown that the disintegration of the industry as a whole was increasing at this time and this trend will be linked, in section two, to strategies adopted by pottery manufacturers in reaction to a changing competitive environment.

Ancillary firms in the pottery industry supplied a derived demand which remained, for the most part, buoyant for the first three quarters of the nineteenth century. The growth of the manufacture of bone china for example, which had emerged in North Staffordshire in the late eighteenth century in response to demand for a cheaper substitute for porcelains from the Far East, the bone being added to ceramic bodies in order to produce a finer and more translucent ware, thus stimulated the material processing sector in which Shirleys operated. The origins of this technique are disputed but innovation and diffusion occurred rapidly in the first quarter of the nineteenth century, the number of firms in the Potteries manufacturing bone china rising from 4 to 44 between 1807 and 1822 (3). Pottery manufacture already required the preparation of a variety of materials and many firms either possessed grinding pans, drying beds etc. or took materials to be ground at one of the multi-purpose mills, typically waterpowered, with which the district was furnished.

However, the growth of the manufacture of bone china, and indeed of the industry in general, was such as to make specialization by firm viable in the supply and processing of this and other potters' materials. Of these specialist firms Bourne and Hudson, founded in 1820 and the forerunners of Shirleys, was amongst the first, though the 'idea of a specialized firm doing the work seemed a relatively new one' to Belgian visitor Guillaume Lambert in 1863-4 (4). Lloyd-Jones and Lewis have used Stigler's model of functional average costs to explore the emergence of specialist textile machinery manufacturers in Manchester early in the nineteenth century, noting that as an industry expands 'the magnitude of the functions subject to increasing returns may become sufficient to permit a firm to specialise in performing it' and that as expansion continues the sub-sector in turn grows and becomes competitive (5). Lloyd-Jones and Lewis note, for example, that whereas large Manchester spinners such as McConnel and Kennedy had previously made their own machinery, between 1800 and 1815 they ceased to do so and specialist machine makers appeared (6).

The development of the ancillary trades in the pottery industry conforms to the Stigler model, with all ancillary trades, including material milling, displaying clear growth in the second half of the nineteenth century. Moreover, though many of ancillary firms were very small, William Mycocks engine and flint mill on Vale Place, Hanley had an RV of just £40 in 1862 for example, and were subject to high rates of entry and exit, some both survived and grew. Thus, many sub-sectors of the ancillary trades, such as material milling, grew and became more competitive. The first large-size category independent ancillary firm was Hanley based millers Goodwin and Sons, with an RV of £600 for their works on Fenton Rd, in 1882 (7). Details of the size structure of the population ancillary firms in Hanley 1862-1882 are shown in Table 7:1:

TABLE 7:1: SIZE OF ANCILLARY FIRMS IN HANLEY, 1862, 1872, & 1882.

Year	Size Categories									
	Small		Medium		Large		Giant		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1862	19	86	3	14	0	0	0	0	22	100
1872	20	74	7	26	0	0	0	0	27	100
1882	27	69	9	23	3	8	0	0	39	100

Source: Hanley Borough Rate Books 1862, 1872, & 1882.

However, it can also be seen that whilst the medium-size category, of which Shirleys. was a member, trebled in absolute terms between 1862 and 1882 it also declined slightly in relative terms between 1872 and 1882, the period during which the onset of more hostile conditions for the pottery industry may be located. Despite the emergence of some larger firms the ancillary trades showed an even more marked tendency to become less concentrated in this period than was displayed by primary manufacturers. Rough proxy measures of industrial concentration in the ancillary trades of Hanley have been constructed using RVs and are presented in Table 7:2:

TABLE 7.2: CONCENTRATION OF ANCILLARY FIRMS IN HANLEY, 1862, 1872, & 1882.

Year	% of 3 Largest Firms to total RV	% of 4 Largest Firms to total RV
1862	52	61
1872	42	55
1882	36	45

Source: Hanley Borough Rate Books 1862, 1872, & 1882.

Furthermore, just as concentration was declining with the expansion of the ancillary trades so this population of firms also grew faster than that of the population of manufacturing firms. The population of ancillary firms in Hanley increased by 77% between 1862 and 1882 and that of primary producers by 65%. In Stoke-upon-Trent the population of ancillary firms grew by 93% and that of primary producers by 23% between 1886 and 1898. In other words, the ancillary trades were becoming more competitive and, at the same time, the ‘system of disintegrated production’ in the Potteries was being augmented rather than eroded as the industry’s external competitive environment became more hostile (8). As Helper notes such a pattern of development, also to be found in the American car industry in the 1980s,

seems to contradict the predictions of....theorists that vertical integration should rise with increasing uncertainty. their reasoning is that vertical integration allows decisions to be made sequentially; as the state of nature is revealed... In contrast, dealing with a financially independent supplier requires either a contract that provides in advance for every contingency or costly post-contract haggling. As uncertainty rises, so does the number of contingencies and therefore also the expense of contracting (9)

In order to address this apparent contradiction Helper advances a ‘new conceptual framework for supplier relations, one that is based on problem-solving mechanisms rather than on financial arrangements’ (10). The problem that pottery manufacturers faced in the last quarter of the century, in addition to falling prices, was not the threat of hold-up in the

supply of inputs, the firms generating those inputs being 'thickly supplied and therefore easy to replace', nor rising marginal costs, but the increasing instability and unpredictability of their demand structure (11).

As will be shown through an examination of the trading patterns at Shirleys those firms which had not integrated the function of material milling, the vast majority of firms in the industry, displaced some of the burden of the rising number of contingencies they were experiencing onto partial process firms. Whilst it will become clear that both a firm such as Shirleys and its customers experienced rising contracting costs as the transactions between them became both less frequent and less standardized, it is also probable that these were more than balanced, for primary producers at least, by an even greater rise in contracting costs between Shirleys and its sources of raw bones. Disintegration permitted the industry to absorb and transmit the impact of contingency. Thus the economies of flexibility offered were probably as great an incentive towards the maintenance of disintegration as the levels of capitalization necessary to integration were a disincentive. Moreover, the system offered further risk reduction, primarily by allowing firms to reduce the amount of working capital tied up in stocks of materials, as will be shown non-integrated pottery manufacturers operated what was essentially a hand-to-mouth policy in the sourcing of inputs (12). The flexibility delivered to manufacturers flowed from the structure of the ancillary trades, that is from the large number of sellers, their ease of entry and lack of significant market share (13). Rising concentration in the supply of materials would have reduced the room for manoeuvre enjoyed by pottery manufacturers. They would no longer have been able to exercise what Helper characterizes as the 'exit' or 'voice with cheating' modes of problem resolution by finding a new supplier or by using concurrently a number of suppliers (14). The district did generate and rely on trust in mediating many financial relationships, but trust rarely outweighed self-interest. Moreover, the costs of switching were rarely high. The trade in standardized goods such as bone, flint and other minerals, coal, or crates, and the face-to-face relations promoted by the clustering of the industry made for low information costs and simple contracts.

Comparison to the emergence of a car component industry in Coventry prior to 1914 reinforces the conclusion that the patterns of integration and buyer-supplier relations seen in the pottery industry had not simply evolved alongside the gradual growth of the industry but were more dependent on the structure of the ancillary sector and of the manufacturing sector and its final-product market. Before 1914 the domestic market for cars was unstable and consumer preferences unresolved, designs changed rapidly and it was by no means clear that there would be a mass market for cars. A plethora of assemblers emerged, many from the cycle trade, but component suppliers multiplied even faster. The result was that car assemblers, 'keen to pass on' a range of burdens, took advantage of the low switching costs resulting from the clustering of many potential suppliers and 'Despite increasing car production....continued to order small runs of components from specialist producers to enable them to switch to more competitive rivals should they emerge' (15). This policy of ordering short runs from different suppliers ensured that 'entry barriers for component firms were relatively low (and) the assemblers were able to take up a powerful position in the buyer and supplier relationship' (16). The result, Beaven concludes, 'saved some car manufacturers from almost certain extinction', yielded significant external factors and retarded vertical integration prior to 1914, giving a surprising number of parallels to developments in the pottery industry (17).

However, though integration of an increasing range of functions, including material sourcing and processing, was the exception it was not unknown and increased throughout this period. Furthermore, some integrated firms proved to be major source of growth in the ancillary trades through diversification. It is not surprising that these integrated firms were also very large firms, and by 1882 all five Hanley firms falling into the giant-size category (Wedgwoods, Brown-Westhead, Moore & Co., J & G Meakin, Clementson and Sons, and E.J. Ridgway) had integrated backwards into material processing. Moreover, the mills these firms operated were very large in comparison to those of specialists such as Jesse Shirley and Sons. Meakin's mill had an RV of £551 and Clementson's £597. Amongst the specialists only Goodwin and Sons, with an RV of £600, matched in size the milling operations of the giant integrated firms. Integration was rare though amongst firms even in the large-size category. Powell, Bishop & Stonier and the Old Hall Pottery Co. were the exceptions, whilst

earthenware manufacture J. Bevington, whose mill and manufactory, with respective RVs of £78 and £198, placed his firm in the medium-size category, was most unusual (18).

There was then a clear correlation between scale and integration in the pottery industry, a correlation accentuated with time. In 1862 such significant firms as Meakins, Clementsons, and Ridgways had all yet to integrate material processing. Why did they then proceed towards integration? The clear demarcation line between giant-size/integrated firms and large-size/non-integrated firms suggests that there was definite size threshold beyond which internalizing a function such as material processing yielded internal economies of scale greater than those generated externally by the disintegrated network. Not only were transaction costs between producer and specialist processor eliminated, at the expense of fixed capital investment, but because of the scale and greater regularity of trade being done information and contracting costs with sources of raw materials may well have been less than those experienced by a firm such as Shirleys (19).

It is significant in this respect that with the exception of Wedgwoods, a firm very akin to Minton's in age, culture, and resources, that the giant integrated Hanley firms of 1882 were relatively young, fast growing, and oriented more towards volume than quality. As was noted in 1891 'In such businesses as the Meakins and Johnson Bros., which have quadrupled themselves in the last ten years, it is certain that some less enterprising firms have had to surrender orders in their favour' (20). In other words, these firms were pursuing and beginning to capture a greater market share. Though such activity did not always meet with the full approval of the trade press it had been recognized the previous year that a 'manufacturer who invests capital...is surely justified in his effort to reap the full benefit of the greater facilities for which he has paid by effecting larger sales at lower prices than can be charged by those who have not his facilities' (21). Integration, often flowing from an 'entrepreneurial decision to supersede an existing network of complementary activities', occurred in these firms as a result of systemic moves, as much organizational as they were technological, towards mass production (22). Though the threat of hold-up was low, as has already been argued the 'assets involved' in many of the ancillary trades were 'generalized

ones' in the district, integration offered not only internal economies of scale but also the greater co-ordination necessary to mass production (23).

Nonetheless, it is apparent that integration also carried risks, not least of which was that the fixed capital costs associated with integration were independent of the volume and composition of the trade done by a firm. These risks were especially high in an industry, such as pottery, in which mass production was in itself innovatory. As Langlois and Robertson have observed there is 'when the nature of a product is still in flux a tendencyfor firms to wait for a resolution of consumer preferences before committing themselves to mass production' and the uncertainty of capital investment (24). The integrating firms of the 1880s were then prime-movers. However, the pattern of diversification into material supply to other primary producers displayed by some of these integrated firms in the 1880s raises important questions. Was diversification a deliberate, expansionist strategy or a defensive reaction to changes in the market and the as yet uncertain nature of consumer preferences in ceramics?

This pattern of diversification is revealed by an exploration of the growth mechanisms within the ancillary trades. As was demonstrated in chapter 2 growth in the population of primary producers was almost solely generated by mobility, but amongst ancillary firms entry also had an important role to play. As is shown in Table 7:3 entry firms represented just over half of the population of ancillary firms in Hanley in 1882.

Though, as might be expected, the majority of entry firms were small a significant feature of the population of ancillary firms in Hanley in 1882 was the appearance of mills owned and operated by some of the giant-sized, integrated manufacturing firms. Such firms have been recorded as participants in the ancillary trades when they received separate listings in trade directories as potters' millers and manufacturers. Both the single medium entry firm in the ancillary population of 1882 (Brown-Westhead, Moore & Co.) and the two large entry firms (Clementson Bros. and J & G Meakin) fall into this category, as does one of the surviving medium sized firms (Powell, Bishop & Stonier). In 1862 only one firm, Livesey, Powell & Co., had combined integration with diversification.

TABLE 7:3 BIOGRAPHICAL HISTORY OF ANCILLARY FIRMS IN HANLEY IN 1882

Type of Firm	Small		Size Category Medium		Large		Giant		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Survival:										
static	9	33	4	44	0	-	0	-	13	33
Mobile:										
up	0	-	4	44	1	33	0	-	5	13
down	0	-	0	-	0	-	0	-	0	-
All	9	33	8	89	1	33	0	-	18	46
Entry	18	67	1	11	2	66	0	-	19	54
Total	27	100	9	100	3	100	0	-	39	100

Source: Hanley Borough Rate Book, 1882.

The entry of these firms will clearly have had an impact on existing smaller specialists. However, more interesting is their motivation for entry. Had they recognized a business opportunity where their existing scale could have potentially quickly lead to market power or were they simply trying find a use for under-utilized physical resources, integration being difficult and costly to reverse. Helper argues that a 'buyer firm with power in its final-product market', the goal of these giant integrated concerns in the Potteries, 'can use that power to change the structure of its input markets'. However, it seems unlikely that these firms were attempting through diversification to induce greater concentration in the ancillary trades, which might in turn also have changed the structure of the manufacturing sector by altering the balance of the disintegrated network (25). As Wilson and others have argued altering the atomistic structure of Britain's industries was beyond the scope of single firms acting alone. Moreover, though demand for potters' materials was being increased by the general expansion of the industry supply showed every sign of being met by a steady stream of small entrants. Indeed, declining concentration in the ancillary trades had not been halted by the entry of the far more heavily capitalized integrated firms. Furthermore, there was in the majority of these cases clear lag between integration and diversification, integration

occurring in the early 1870s and diversification in the early 1880s. Thus, it was the continuing lack of power these firms had in the final-product market that had forced them into an adaptive rather than intended strategy of diversification (26).

Thus, integrated firms, despite their attempts to move towards mass production, were, like all others in the Potteries, subject to increasingly unpredictable trade patterns in this period. Their decision to diversify rather than to divest reflected the implausibility of substituting at the margins with every shift in their cost or demand structures. Though Lazonick has argued that in the post-1945 cotton industry spinning, weaving, and, marketing firms readily combined and separated for the 'sake of short-term supply and demand advantages' and that this 'constituted precisely Coasian managerial decision-making' he goes on to argue that to 'reap the benefits of mass production, the modern enterprise cannot shift its mode of operation with every change in relative factor prices' and that:

the manager who integrates and disintegrates operations according to the ebb and flow of the market situation does so in lieu of the long-term planning of the organizationally interconnected and technically interrelated production and distribution processes that characterize the modern corporation. (27)

Diversification amongst large pottery manufacturers in the 1880s was the result of the conjunction of strategic decision to pursue mass production and a determination to maintain the resources necessary to that strategy rather than to enter rashly into any costly and possibly irreversible policy of divestment (28). As if to emphasize this point the giant integrated firms of the late nineteenth century, such as Meakins, remained industry leaders throughout much of the twentieth century. Nonetheless, vertical integration remained exceptional and as late as 1974 Gay and Smythe were able to assert that 'the preparation of materials....are mainly undertaken by specialists on behalf of the manufacturers. Because the suppliers operate on a large scale....the pottery manufacturers benefit from specialisation' (29).

Did the disintegrated system of production in the Potteries bring other benefits not yet touched upon? Greater innovatory capacity is often portrayed as a further attribute of disintegration, an effect related perhaps to Marshall's notion of 'industrial atmosphere'. Langlois, for example, has argued that 'the ability to engage in rapid trial-and-error learning can sometimes be an external economy that cannot be traced back to economies internal to individual firms: it is a property of the system as a whole' (30). However, the innovatory characters of disintegrated systems seem industry specific, turning on both prevalent technologies and cultures, that is on Mass and Lazonick's notion of the cumulative and progressive development and utilization of productive resources (31). Thus, although it has been argued that disintegration is particularly effective in fostering innovation when products change rapidly, under the influence of fashion as well as technology, and primary producers are small it has already been demonstrated, in chapter 6 of this work, that disintegration did not lead to innovative design provision in the Potteries (32). The structure of the industry in the Potteries encouraged a recirculation of resources rather than their progressive development, disintegration providing disincentives to innovation which are 'especially severe for firms....where intense competition led to supplier industries populated by tiny firms lacking in both organizational and physical capital' (33).

7:2 JESSE SHIRLEY & SONS, c.1820-1890

In what ways may the growth and development of the firm of Jesse Shirley and Sons be related to the wider trends outlined above, and be used to further illustrate the process of change in the patterns of integration displayed by the pottery industry in the latter half of the nineteenth century? The fortunes of the firm, founded in 1820, expanded decisively by a capital investment programme in the 1850s, and undergoing contraction in the 1880s, paralleled the development of the wider industry. The example provided by the firm emphasizes the model of increasing specialization derived from Stigler and reinforces the impression of increasingly difficult trading conditions from the mid-1870s. The broad story of the firm will be followed first. This section will also explore the role of the family and personal capitalism in the development of inter-firm networks in the nineteenth century. Subsequent sections will explore in more detail the activities of the firm, providing evidence

of the way in which the disintegrated system functioned to absorb contingencies, reduce risks, and deliver economies of flexibility (34).

The firm was founded in 1820, though, as has been noted, a Belgian visitor to the Potteries in the 1860s thought specialization in this field relatively new. The firm was then a prime mover driven by the entrepreneurial activities of its founding partners, Bourne and Hudson (35). Little is known of this partnership, though it seems likely that Hudson was a sleeping partner (36). The family firm and personal capitalism have become key areas in debates over the organization and performance of British business. They have been seen as the seedbeds of both a conservative business culture and of an atomistic business structure (37).

However, the route taken to ownership of the firm by Jesse Shirley emphasizes that there was in the nineteenth century no typical family firm. Family firms were to be found in every sector and were of every size and structure, from the giant cotton concern of Samuel Greg and Co. to the far smaller retail units of Nenadic's Edinburgh studies (38).

Shirley's route to ownership of the firm was complex, being built on his previous employment under Bourne, marriage into the Bourne family, and finance from his own immediate family. The business went on to become a genuine inter-generational family firm, ownership passing to Jesse's sons, and the firm remains an independent family business today (39). Pomfret presents evidence that Jesse, born in 1822, was an employee of Bourne at the bone works from 1841 at the latest and that throughout the 1840s was the firm's most highly paid worker (40). How did Shirley move from the position of employee to that of employer? Pomfret makes reference to a 'family tradition' which holds that 'John Bourne married twice and, following his death, Jesse Shirley married his widow', for which there is supporting evidence. Jesse and his older brother Joseph each inherited one quarter of Bourne's estate and the appearance of J. Bourne-Shirley as a co-occupier of the Etruscan Bone Works in the Hanley Borough Rate Book of 1882 links the two family names in one person (41).

Marriage to Bourne's widow provided Shirley with an entry into business but his own family played a vital role in supplying further financial and managerial resources and, perhaps most

importantly, integrating the firm into local business networks. Having gained control of a firm which had, at an early stage, assumed a central position in the district's emerging system of disintegrated production Shirley was also well placed to take advantage of rising demand in the industry's final-product market in the third quarter of the century. In particular, the Shirley family's financial reserves were central to the building of a new mill in 1857, shortly after Jesse gained control of the firm (42). The new mill added significantly to the firm's capacity, suggesting that returns to the function of material processing were continuing to increase at that time. Thus, the potential for continued expansion in some specialisms also led to the heightened fixed capital intensity seen in some ancillary firms such as Shirleys, moving integration further beyond the reach of the majority of manufacturers. This effect was further magnified by a concurrent decline in the concentration of the pottery industry. (See Appendix E:1 for details of the firm's physical resources and Appendix E:2 for detail, including costings, of the mill building programme of 1857.)

The family's financial strength was derived from the retained profits of other business activities. These were mercantile in nature. Joseph Shirley was recorded in the census of 1851 as an 'Agent for Manufacturers' and unmarked ledgers stored with those of both Bourne and Hudson and Jesse Shirley and Sons, detailing a trade in china clay and stone carried out between Cornwall and the Potteries between 1844 and 1851, make it clear that he was a merchant (43). Through this activity the family had built up reserves of capital, contacts, goodwill and trust in the district, qualities emphasized by Nenadic as important attributes of the nineteenth century family firm, that supplemented those established by Jesse whilst Bourne's employee (44). Many of Joseph's customers for clay and stone will also have been Jesse's customers for bone. Thus, the family and the firm were quickly integrated into the business networks of the district. Similarly, in a study of textile engineering firms in West Yorkshire, Cookson notes that it was 'vital to be connected into a local network of technical and commercial information' and that the family very often played a central role in the process of insertion (45). However, Cookson also asserts that the 'system of connections' she found in Yorkshire early in the nineteenth century was 'founded on tenets of common interest and collaboration', nominally competing firms often aiding one another,

but, as has already been suggested, evidence of such behaviour in the Potteries later in the century is much scarcer (46).

Evidence of a reduced but continuing trade in china clay and stone is also to be found in ledgers definitely belonging to the firm of Jesse Shirley and Sons, and the two brothers also jointly owned a number of residential properties. There is then a pattern of diversified business activity to be found within the Shirley family, a pattern emphasized as a positive aspect of the Greg family businesses in studies by Rose (47). Rose also notes that ‘Many entrants to the cotton industry transferred capital amassed from profits earned as merchants, into large scale manufacturing concerns’, and though the mercantile route was not typical of those entering the pottery industry as manufacturers it was appropriate to the trade carried out by Shirleys (48).

During the first fifty years of its life then the firm of Jesse Shirley and Sons was able to establish itself and prosper as a key ancillary firm, one of a small cohort of larger independent specialists, as the industry which it served enjoyed continued expansion and growing demand. This growth and development has been related both to industry wide trends and to the centrality of families to localized inter-firm networks. However, in the late 1870s or early 1880s the firm underwent a process of contraction. In 1872 the firm owned and occupied three sites in Etruria with a combined RV of £375 (two mills and a smaller collection of offices, stabling etc.) but by 1882 the smaller Bells Mill (RV £169), though still owned by the executors of Jesse Shirley, stood unoccupied (49). The firm survived but was clearly experiencing difficulties. However, as was shown in chapter 3, pottery exports did not decline in volume in the last quarter of the century. Instead, pottery manufacturers were faced with a more erratic demand structure and falling prices (50). Shirley’s problems must be traced primarily to those changes rather than to any fall in overall demand, and to the growing competitiveness of the sub-sector in which they operated, in part a result of the diversification of large integrated manufacturers responding to the same pressures in their markets. How were these effects reflected in the patterns of behaviour displayed by the firm?

The business system supplying bone products to the pottery industry was built on a chain of relationships linking four components. These were: i. sources of raw bones, located primarily within the city and its immediate rural environs, ii. the processing firm, in this case Jesse Shirley and Sons., iii. pottery manufacturers, forming the largest and most valuable group of customers for the firm's products, and, iv. customers for the by-products of processing, located mainly in the textile districts of Lancaster, Yorkshire, and the Midlands. These relationships displayed a series of marked differences from one another. For instance, the relationships between the processing firm and its two customer groups were carried out in quite different ways. All these relationships also changed over time.

The sources of the raw materials used by the firm, bone, coal and slack, will be examined first and in order. From whom bone was bought, the pattern of transactions (i.e. frequency and volume of transactions), how purchases were handled and overall volume will all be examined. In all transactions carried out by the firm, whether with suppliers or customers, the frequency and consistency of transactions (whether or not orders are for simple, standard amounts, for example) is of particular interest, for, as Nicholas has emphasized, rising infrequency leads almost invariably led to rising contracting costs (51).

In 1857 raw bones, those that needed to go through each stage of processing, were bought from six sources, all located in the city or its immediate rural environs. A much smaller quantity of bone in other forms, either ash or ready calcined, came from a further three sources two of which were located in Liverpool. The total expenditure on bone in 1857 was approximately £5,234. By way of contrast total expenditure on the new mill stood at £1,802 at the end of 1858, whilst the total wage bill for 1867 was £819. Clearly the firm's cost structure was very different to that of most pottery manufacturers, where wages predominated, though the high levels of expenditure on inputs probably ensured that their need for working capital was just as great. By 1867 suppliers of bone had risen by two to eleven and the total expenditure on bone had also increased to £6,094. By 1884, however, though expenditure on bone had declined the sources used had multiplied. The overall value of bone purchased had fallen back to £5,046, lower than that of nearly three decades earlier (52).

However, most significantly, the smaller quantities of bone purchased by the firm in the 1880s came from a much wider network of smaller suppliers, 24 in number, and whilst the majority of these were still to be found in the Potteries and its surroundings others were to be found elsewhere, particularly to the south in the Black Country (See Appendix E, Table 1, for details of bone supplies in each of these years). The obvious consequences of these conflicting trends was that the amounts bought from individual suppliers tended to fall in both weight and value whilst transactions also became more infrequent. The bulk of bone processed no longer came from one or two dominant sources supplemented by a handful of suppliers used less often and for smaller amounts. By the 1880s sources that can be characterized as petty had come to dominate Shirley's sources of raw bone. As will be shown, this more erratic sourcing of raw materials reflected the increasingly erratic orders being placed by the firms customers. It was this increasing mass of petty transactions that pottery manufacturers, facing increasing uncertainty in their own markets, avoided through taking advantage of the disintegrated system. These changes in the sourcing of raw bone will be illustrated more fully through studying one supplier, John Gray of Hagley, a Cheshire village to the north-west of the Potteries.

Gray supplied bone to Etruria in each of the three years examined in the second half of the nineteenth century, that is from 1857 to 1884. In fact, Gray had also supplied bone to value of £2,466, out of total bone purchases of £3,264, in 1835. The relationship was durable and, it may be assumed, characterized by a degree of loyalty. Continuity of involvement between Shirleys and other suppliers was not unknown. Thomas Culshaw of Newcastle-under-Lyme supplied bone for over a decade in the middle of the century, but the relationship with Gray was exceptional, reflecting the volume and stability of trade between the two. Between July and December 1857 the value of bone purchased from Gray was barely less than 50% of the total value of raw bone bought (£1,229 out of £2,617). Gray's deliveries were both regular and frequent, four or five a month at very nearly one weekly intervals. They did, however, range in both size and value, from one to ten tons and £12 to £76. The highest total value of raw bone supplied by any other local source in the same period was £64, though two lots of

calcined bones with a total value of £370 were sourced locally and calcined bone and bone ash worth £565, again in two lots, was shipped from Liverpool (53).

By 1867 Gray was less dominant. Over the whole of that year the value of his trade in bone with Jesse Shirley was little more, at £1,721, than it been had in six months ten years earlier. The frequency and regularity of his deliveries had not altered significantly but their size and value had. This is not in itself indicative of Shirleys reacting to changing trading conditions with altered behaviour but that conclusion is suggested by evidence from 1884. In that year Gray made only one delivery a month, with the exception of May in which there were two, and their size and value had also decreased. In total Gray supplied bone to the value of £368 and was now just one among a throng of petty suppliers, such as Ann Cain of Longton who between May and August supplied bone to the value of £9-17-2 or John Clewlow of Cheadle whose many deliveries throughout the year attained a total value of only £62. Gray's decline, which might in itself have been caused by a number of unrelated factors, had not led to the emergence of a new, comparably dominant, supply of raw bone; instead the dispersal of a multitude of lines of supply from an assortment of farmers and rag and bone men had been maximized (54).

This changed relationship between Shirleys and its suppliers of raw bone represented a flexible response by the firm to changes in the behaviour of primary manufacturers, heightened competition and uncertainty having led them to alter the way they purchased raw materials. However, though more flexible the strategy also imposed penalties on the Shirleys and, as has been seen, the firm contracted in the early 1880s. In particular, a multitude of irregular transactions led to opportunity costs in the form of management time devoted to both overseeing a now more complex, dispersed, and less reliable system and to the co-ordination of supply and demand in order to avert the threat of either plant under-utilization or inability to meet sudden orders. At the same time increased information and contracting costs were also incurred as transactions become less routine and thus open to greater negotiation (55). This point may again be illustrated by reference to the example of John Gray, which demonstrates that changes in the pattern of transactions was accompanied by changes in the way they were handled, particularly in terms of payment.

In 1857 Gray, like all local suppliers of bone was paid in cash. However, the consistency of the trade done allowed payment to take the form of regular, rounded monetary sums bearing no relation to specific deliveries. In 1857 even the relatively large and distant deals with Liverpool were paid for with cash, though it is interesting that these were the only ones on which Shirleys paid commission. As the century progressed and the trading pattern became more fragmented so to did the methods of payment used by the firm. By 1884 bone was being paid for with cash, cheques, bankers' drafts and payment in kind all employed, at times in combination and with no strong correlation between size or value of purchase and method used. There is also no indication of Jesse Shirley receiving discount from any of the sources of bone recorded (56).

In comparison to bone the sourcing of coal and slack, necessary for the boiling, grinding by steam power, and drying of bone was relatively simple and also displayed less change in the period under study. These differences may be attributed mainly to the large-scale structure of the mining industry in the region. Demand from the pottery and steel industries of the district had brought the local mining industry to maturity and all supplies of coal were local (See Appendix E, Table: 2, for details of coal supplies in 1857 and 1884). In 1857 four sources were utilized, they were; Fox and Tinsley of Cobridge, Thomas Brindley also of Cobridge, Adderley and Dean of Norton and Charles Hale of Ford Green. Of these four Fox and Tinsley made both larger and more regular deliveries. However, Brindley also made very regular, though smaller, deliveries. Indeed, the two sources found close at hand in Cobridge, adjacent to Etruria, were essentially used in conjunction. By 1884 this picture, though altered in detail, remained similar in outline. The Butterley Colliery of Silverdale and The Hanley Colliery Company, were being used in conjunction. Both collieries made deliveries in all twelve months of the year, though they tended to be paid rather differently. Butterley Colliery, with whom a marginally larger trade was done, were paid on only four occasions throughout the year (April, May, August, and November) whilst The Hanley Colliery was paid on a monthly basis, though with a delay of two months from delivery. Both collieries received cheques only and gave discount, typically in the order of 5%. A much smaller trade was done with Henry Warrington of Hanley, who made deliveries in May, July, August,

November and December. Warrington was paid with one bankers' draft and gave discount of 2.5% (57). Clearly, much less flexibility was available to Shirleys in sourcing coal than was the case with raw bones.

Though few in number the firm enjoyed an important relationship with customers located outside the Potteries, particularly in the middle decades of the century. In 1857 the firm did business with five customers outside the Potteries, two in Manchester and one a piece in Nottingham, Derby and Wolverhampton (See Appendix E, Table: 3, for details of all types of customer in 1857 and 1884). The firms in Manchester both bought size and tallow, weak glues used in the cotton industry to give weight and strength to cheap cloth. The trade with one of these firms, J. & J.M. Worrall, was very substantial, greater in value than that with any individual pottery firm by a considerable margin. However, as with the supply of raw bone, the 1880s witnessed the collapse of all trade with firms and individuals located outside the district into a mass of smaller, more infrequent and much less valuable transactions. The Ledger for 1884 records sales of not only tallow, size and various bone products but also rags, hay and manure. Again there is a concentration of customers located in textile districts, three in Manchester and one in Halifax, but none of these firms, including Vickers with whom business was being done in 1857, placed more than a handful of orders or spent more than £20 with Jesse Shirley and Sons throughout the course of the year (58). These are indications that the changes to the supply of raw bones made by the firm bore a clear relationship to alterations in demand in the period under study. Again the costs incurred in supervising a greater volume of less valuable transactions may be inferred. It will now be shown that similar changes characterized trade with the firm's principal customers, ceramic firms located within the Potteries.

Examination of trade between the firm and pottery manufacturers will focus on the same features explored in the relationships between others components of the business system; by whom orders were placed, the size, value and frequency of those orders, how they were paid for and alterations in all of these factors over time. Furthermore, differences between business done inside and outside the Potteries will also be illustrated. These differences will

be shown to have lain principally in the methods of payment most commonly used by pottery firms and may, in turn, be related to circuits of credit prevalent within the district.

As might be expected pottery firms, as a group, were numerically more significant than any other group of customers throughout the second half of the century. Typically they also spent more than other types of customers, though none of them spent as much on bone products as Worralls spent on size and tallow in the 1850s. Of the fifteen customers recorded in the Ledger covering 1857 nine were pottery firms, fairly evenly distributed through the five towns. Three were to be found in the southern china townships of Longton and Fenton, three in the increasingly important centre of Hanley and its satellites and a further two to the north in Burslem and Tunstall, where earthenware in which bone was not an important ingredient was the staple product. The final firm occupied a peripheral location in Brownhills. The Longton and Fenton firms did however spend more, placing orders with a far greater degree of frequency. For example Allerton and Co., the firm's most important pottery customer, took delivery of no less than seven lots of ground bone, each of 20 cwt., in July 1857 alone. Only in December 1857, a typically slack month in the pottery trade, were there less than five transactions between the two firms. The patterns displayed by J. Lockett, also of Longton, and Thomas Green of Fenton were very similar, though neither did quite as large a trade as Allerton and Co. By contrast the two northern firms, Elsmore and Forster of Tunstall and T. & R. Boote of Burslem, each placed only one order between July and December 1857. The trade with china firms was then central to Shirleys (59).

Much of the broad outline of this trade remained unchanged in 1884. Looking at just June of that year nearly two thirds of the firm's customers (33 out of 55) were again located in the Potteries, similarly of the 176 orders for all products or services placed with the firm in that month 128 came from firms directly involved in the pottery industry. China manufacturers were again dominant. There were 18 china or mixed china/earthenware firms to just two earthenware manufacturers amongst all customers from the pottery industry. However, that firms from Longton and Fenton were not now numerically predominant (10 to 15 in Hanley and Etruria) is indicative of the continued shifts within the district, the sectoral/civic alignment of earthenware to the north, china to the south starting to become blurred. Finally,

as in 1857, pottery firms were more likely to place multiple orders than other customers (60).

However, the trade being done with these customers was quite different in complexion in a number of ways. In 1857 bone was ordered and supplied in near standard 20 cwt. lots, but in 1882 deliveries displayed a much greater range of sizes and values. Many other products were being supplied alongside bone and, perhaps most significantly, services as opposed to products had emerged as an important part of the firm's business. The firm was, therefore, diversifying its activities as the staple trade in ground bone became increasingly unpredictable and less valuable. There were still firms doing a large and relatively steady trade with Shirleys, but even these displayed a degree of contingent behaviour.

For example, Robinson and Son, china manufacturers of Sutherland Road, Longton, are recorded as having made no less than four separate orders on the 7th of June 1884 alone, two for differing weights of ground bone, one for ground stone and one for grinding an unspecified material. Thus, they required of Shirleys two quite distinct products, bone and stone, in addition to a service in the form of grinding a material sourced by the manufacturers themselves. Products other than bone and, in particular, grinding glazes and colours were much less valuable to Shirleys than its once core, indeed almost exclusive, trade in bone. Furthermore, examining only the trade in bone, the orders placed by Robinson and Son ranged in size from 26 to 14.75 cwt. and included other fractional numbers in between, a characteristic not present at all in 1857.

This was not atypical of the trading pattern between the two firms, for Robinsons placed a total of 30 separate orders in June 1884. In other words Robinsons appeared to be doing a very vigorous trade with Shirleys, but when that trade is examined in detail it can be seen that it was composed of a mass of petty transactions. June 1884, a comparatively busy month even in depressed years, clearly led to Robinson and Son placing heavy demands on Jesse Shirley and Son. These demands, if they were to be met internally, required initial fixed capital investment, which, as we have seen, only the very largest manufacturers were either willing or able to make, and would also have incurred the risk of the under-utilization of that

investment when demand for the firm's finished product was slack. As has already been suggested a network of partial process firms did allow the pottery industry to benefit from external economies of scale and flexibility, the functioning and efficiency of which must be related to the physical clustering of the industry (61). Indeed, this pattern was perhaps only feasible given the tight spatial clustering of the district.

Customers of comparable importance to the firm in the 1850s and 1860s, such as J. Lockett and Allerton and Co., both of Longton, had not behaved in this way. Throughout the second half of 1857 these firms, and others such as Thomas Green of Fenton and Cockson and Harding of Cobridge, all placed orders for 20 cwt. of ground bone at intervals of one week or slightly less. Firms that did not order from Shirleys in this pattern, such as Elsmore & Forrester of Tunstall or Ridgway and Abington of Hanley, all placed only one order, and then only for 10 cwt. of bone, in the same six month period. This would seem to suggest that they too had regular relationships with other material millers and turned to Shirleys only in the last resort. In other words, in the mid-century the firms customers did not operate what may be described as hand-to-mouth strategies, nor did they use either the 'exit' or 'voice with cheating' modes of buyer/supplier relation but instead sought and valued stability and loyalty in the inter-firm networks in which they were involved (62).

However, the kind of vigorous if slightly unpredictable trade done with Robinson and Sons was repeated with few other firms. As with the sourcing of raw bones the multiplication of the firm's customers was also accompanied by a general reduction in the size and regularity of orders and it is not possible to identify any particular group of pottery firms as providing a dependable backbone to Shirleys' business in the 1880s. Not only were firms using hand-to-mouth ordering strategies but they were also using an amalgam of the 'exit' and 'voice' modes of supplier relationship, developed by Hirschman and applied to the American car industry by Helper (63). The patterns of behaviour displayed by many firms suggest that dealings between manufacturers and firms such as Shirleys were 'characterized by short-term contracts, arms-length relationships, and many suppliers' per input, a strategy which 'maximized buyer bargaining power' at a critical time (64). Because Shirleys enjoyed

durable though frequently erratic relationships with some of its customers these relationships may be characterized as 'voice with cheating'. Such relationships are not

explicitly nurtured (but are) maintained because of personal trust between individuals at the two firms or because of firms status as a traditional supplier. Over the decades that these relationships endure, fairly complex norms of reciprocity....arose, as buyers and suppliers attempted to forge continuing relationships in an atmosphere characterized by both intense conflict and mutual dependency. (65)

The crucial attribute of the voice with cheating mode is that it does not, even in a tightly clustered industry such as pottery, preclude either reneging or buyers playing suppliers off against each other. The trust which Shirleys had established in the disintegrated system of the Potteries could only do so much to over-ride the imperatives of manufacturers seeking to reduce their costs and enhance their flexibility

These changes in the firm's day-to-day business activity may be related to two factors; that is to structural and strategic changes in the pottery industry. The latter point may best be seen in changes in the behaviour displayed by established customers, such as T. & S. Green of Fenton and Allerton and Sons of Longton. Shirleys had done business with both of these firms in 1857 so they may be considered well established concerns and yet both, in the altered trading conditions of the 1880s, were placing orders that were both smaller and less frequent than before. The impact of these strategic changes in the pottery industry can be seen then in the fact that irregular and infrequent ordering was now the norm and not the exception. Most of the orders received by Shirleys were now from firms placing infrequent orders and most of the firms doing business with Shirleys placed infrequent orders. For example, of the 24 pottery firms which can be identified as placing orders with Shirleys in June 1884 nearly 50% placed two or less orders and typically carried on in the same way throughout the year. Their behaviour was then quite different to that of the firms placing infrequent orders at the mid-century (66).

However, the rise of less frequent and pettier ordering amongst the majority of Shirleys customers may also be traced to structural change in the industry, and in particular to a proliferation of small, new firms and decline in industrial concentration. It seems probable that those firms placing infrequent orders in the 1880s did so because they both had a lower overall demand for materials, because they were small, and because they were also using several suppliers at the same time. Shirleys records display a clear correlation between infrequent ordering and small, new entrant firms such as Banks and Morley (RV £100) and E. Steel (RV £80), both of Hanley, or Shorter and Boulton of Stoke-upon-Trent (RV £83). Such firms were both less likely to feel loyalty to any one supplier and whilst also being keen to maximize their sources of credit from within the industry (67).

Another manufacturer typical of this group was Thomas Bevington, china manufacturer of Burton Place, Hanley, whose firm (RV £204) had entered the industry between 1872 and 1882. Bevington placed just one order for 12 cwt. of best ground bone in June 1884. Small, new-entrant firm were also more likely than older customers to place orders for bone that were smaller, or to place orders only for grinding small amounts of glaze etc. There were exceptions to all these trends though. For example the firm Wm. Stubbs, earthenware manufacturers of Hanley placed just one order with Shirleys in June 1884, buying 28 cwt. of ground bone, yet was a well established firm in the medium size category. A further entirely new feature of the trade being done by Shirleys in the 1880s were the transactions between Shirleys and other ancillary firms such as the Hanley colour manufacturers Wengers (RV £45) or the large milling firm of E. & C. Challinors (RV £272). These transactions, again typically for small amounts of grinding rather than substantial quantities of materials, point to a rise in contingencies. With greater irregularity of trade came increasing difficulties in coordination, leading in turn to occasional inability to meet demand in the short-term, hence the orders placed with a competing ancillary firm. ‘Mushroom’ firms impacted not only on the relationship of the industry to markets then but also on that with its ancillary trades (68).

Furthermore the price the firm could charge for ground bone also seems to have fallen, from between 10 and 11 shillings per cwt. in 1857 to around 8 in 1884. In the context of the patterns of trade within the district and the non-occupancy of Bells Mill in 1882, the

grinding of often petty quantities of materials for other firms, apparent in the ledger of 1884, must be seen not as a strategy of deliberate diversification but rather as a defence designed to minimize the under-utilization of plant, an adaptive rather than intended strategy. The returns to specialization open to a firm such as Shirleys were becoming harder to capture. The strategies displayed by the firm in the 1880s are an example of Moss's weak motivational model, prizing survival over profit maximization (69).

Some of the ways in which the disintegrated system of production in the Potteries delivered flexibility and risk reduction to manufacturing firms have been demonstrated in this examination of the day-to-day business activity of Shirleys. However, that system and the role played by firms such as Shirleys did not, of course, eliminate risk. Instead, risk was transferred or deferred and remained within the industry. Moreover, the methods of payment for transactions occurring within the Potteries revealed by the example of Jesse Shirley and Sons went some way towards the informal reintegration of the industry along lines of credit and debt. By the 1880s bankers' drafts and bills of exchange dominated transactions within the district in a way not seen in the mid-century. Collapse in one link in these circuits could have much wider implications; lean times, a preference for raising finance through retained profits, and the constant demand for working capital of firms large and small, meant that there was many a business which did not have the 'capital which it requires to meet an emergency' (70). The result was that failures tended to run in series. In August 1896 it seemed as though 'The slackness of trade and low prices....are beginning to bear fruit, and two failures have been announced in the present month' (71). A more specific example may be drawn from March 1883.

The present state of the trade is, to use a common phrase, 'in a regular jumble'. First of all John Plant and Co., China decorators, Stafford Street tumble over for a small amount-under £300. Then, like a row of bricks, follows the startling news that another has gone for £2000; and, as a sort of climax, comes Messrs. Wm. Kirkby and Co. with the respectable amount of £24,000. (72)

It is interesting that this chain began with a small partial process firm and ‘climaxed’ with a large manufacturer. The ancillary trades were clearly fully integrated into such chains. When Furnivals, a large grinder and supplier of flint and other potters materials, failed later in 1883 their liabilities of £33,883 included £23,015 owed to unsecured creditors, the majority of them local firms, and in other reports of bankruptcies the majority of creditors were always local firms directly involved in the industry. The use of bankers drafts and bills of exchange, so prominent in the many transactions carried out by Jesse Shirley with other local businesses, was central to the functioning of the disintegrated system and its drawbacks. As Pomfret noted ‘In the advantage of the bill of exchange’, that is its ability to circulate, ‘also lay its danger....the failure of one substantial trading concern could precipitate the failure of many others’ (73). Thus, though methods of payment between firms within the Potteries extended the flexibility inherent in disintegration and eased liquidity problems they also carried dangers.

The evidence provided by Shirleys wage books, assuming a degree of correlation between the firm’s derived demand and demand for labour, suggests, however, that whilst both uncertainty and contingent strategies were on the increase the extent to which the industry experienced seasonal fluctuations lessened slightly in this period (74). The impact of seasonality on the pottery industry was rooted in fluctuations in demand and in the practicalities of supply. Fashion had its seasons, as did the weather. The winter months were particularly hard, bringing both fewer orders and more difficult working conditions, the ‘banks’ of clay, very often stored outside by manufacturers, even freezing solid on occasion (75). These variations were held to be a ‘greater factor in the cost of production than is generally acknowledged’ (76).

Wage patterns at Shirleys have been analyzed in order to determine the degree of fluctuation between the highest and lowest monthly wage bills. The wage pattern of 1844 was reconstructed first to provide a basis from which to explore changes in the second half of the century. In 1844, during what may be thought of as the formative stage of the disintegrated system in the Potteries, fluctuation was very marked. Much of the firm’s workforce in that year worked for only a few weeks. As might be expected, January was the least wage

intensive month, total wage bill £23-8-6, and June the highest at £48-10-8. In other words a degree of fluctuation of over 100%. January was also the least wage intensive month in 1867 and 1884, though, perhaps as a result of working on the new mill, it fell in July in 1857. The most wage intensive month was May in 1857 and 1884 and March in 1867. However, by 1857 the degree of fluctuation had dropped to around 50% where it remained in 1867. An increase of a few percentage points in the degree of fluctuation in 1884 suggests that, though the trend was not particularly marked, greater uncertainty in that period was also compounded by rising seasonality (77).

This chapter has demonstrated that the growth and development of a population of ancillary firms in the Potteries led to the creation of a tightly clustered 'system of disintegrated production', yielding external economies of scale, economies of flexibility, and reduced risks. These attributes became more important in the last quarter of the nineteenth century as adverse changes in the market forced many pottery manufacturers into a search for strategies able to meet the increasing number of contingencies they faced. The development of this disintegrated system was congruent with concurrent changes in the structure of the pottery industry, particularly the proliferation of small-scale firms from the mid-1870s and declining levels of concentration. At the same time, however, a small group of much larger firms was emerging and some of these firms sought to exit from the disintegrated system by integrating an ever greater range of functions. The returns to integration were, though, still uncertain and hard to capture, and in the context of a changing competitive environment and changes in the structure of the industry some of these firms were forced in to an adaptive strategy of diversification in the 1880s.

Many of these industry wide developments were reflected at the micro level in the experience of the firm of Jesse Shirley and Sons, its growth and development mirroring that of the industry it served. Changes in the material sourcing strategies of manufacturers and in buyer/supplier relations in the industry were to be seen in the trade between the firm and its well established customers, who ordered and paid for bone, other materials, and services in increasingly erratic patterns. The impact of structural changes in the wider industry, on the

other hand, was to be seen in the firm's newer customers, many of them small entrants displaying less loyalty and liable to use Shirleys in a yet more irregular way. The result was that Shirleys had itself to minimize its commitment to its lines of supply and, eventually, to contract in the 1880s, leaving one of its three sites unoccupied. The firm did, however, survive and remains an independent family firm today.

However, this disintegrated structure may also have been one factor in creating in the Potteries a systemic bias towards small-scale enterprises unable to make the three pronged investment in manufacturing, marketing and management, which Chandler argues began to distinguish American and German business from the late nineteenth century. In the Potteries, just as in the American jewellery industry in the same period, there was 'spatial flexibility with a vengeance, but the question of who would capture its benefits would unsettle the trade for decades' (78). Increasingly the largest firms in the industry, including many of those integrated firms examined here, argued that the further growth and development of the industry in the Potteries was being constrained by this same unresolved question, and in the next chapter their attempts to gain greater influence over the industry by building industry-wide organizations will be explored.

NOTES AND REFERENCES

1. Scranton, 1991, p.35. In a study of textile machinery firms in West Yorkshire Cookson refers to the inter-firm networks as constituting the “dispersed factory” of an industrial community’, Cookson, G., ‘Family Firms and Business Networks: Textile Engineering in Yorkshire, 1780-1830’ Business History, Vol.39, No.1 1997, p.9. Many of these arguments derive from the work of Marshall, who argued that the activities of the ancillary firm allowed manufacturing firms to realise external economies of scale that were not available through integration. Moyes has explored some of these ideas in the context of the pottery industry in ‘Victorian Industrial Structure and Inter-Industry Relationships in the Potteries: A Framework and Exploratory Analysis’ North Staffordshire Journal of Field Studies, Vol.19, 1979. As Moyes notes though, external economies have, in many different contexts, proved highly resistant to quantification.
2. Hanley Borough Rate Book, 1882.
3. Pomfret, R., ‘My Bones are Burned as an Hearth: The Origins of Jesse Shirley and Sons’ Northern Ceramic Society Journal, Vol.5, 1984, p.149.
4. Celoria, 1973, p.15-6.
5. Lloyd-Jones and Lewis, 1988, p.171.
6. Ibid.
7. Hanley Borough Rate Book, 1882.
8. Hanley Borough Rate Books, 1862 & 1882, Stoke-upon-Trent Borough Rate Books 1886 & 1898, Scranton, 1991, p.35.
9. Helper, S., ‘Strategy and Irreversibility in Supplier Relations: The Case of the U.S. Automobile Industry’ Business History Review, Vol.65, No.4, Winter 1991, p.782.
10. Ibid., p.784, Helper also notes that disintegration may be the best available option under conditions of ‘radical uncertainty’, p.818.
11. Langlois, R. & Robertson, P., ‘Explaining Vertical Integration: Lessons from the American Automobile Industry’ Journal of Economic History, Vol.XLIX, No.2, 1989, p.362. Langlois and Robertson label this approach ‘The asset specificity version of transaction cost theory’ and describe it as ‘arguably the dominant approach in the study of vertical integration’ Ibid
12. Ibid., p.370. The authors stress that, as in the pottery industry, it was external forces which led to the desire for small inventories and hand-to-mouth purchasing strategies. They also note that ‘if modern proponents of this techniques are correct the adoption of hand-to-mouth purchasing had efficiency advantages over and above its ability to economize on inventories’. Even under vertical disintegration inventory costs can rise, Beaven notes, for example, that ‘In 1901 Daimler reported that over forty-eight thousand pounds of their capital was tied in stock which “consisted almost entirely of finished parts”’, Beaven, B., ‘The Growth and Significance of the Coventry Car Component Industry, 1895-1914’ Midland History, Vol.XVIII, 1993, p.113.
13. Hirschmann identifies two basic responses to problems in buyer/supplier relations: i. ‘exit, where the buyer’s response to problems with a supplier is to find a new supplier’ and, ii. ‘voice, where the buyer’s response is to work with the original supplier until the problem is corrected’. As Helper adds, the key to successful ‘exit strategy is making credible the threat to leave if its demands are not met’, owing to what may be defined as the polypoietic structure of the ancillary trades in the Potteries such threats were largely

- credible in the inter-firms networks of the pottery industry. Helper, 1991, p.785.
14. Ibid., p.785.
 15. Beaven, 1993, p.113.
 16. Ibid., p.114.
 17. Ibid., p.114.
 18. Hanley Borough Rate Book, 1882.
 19. As Langlois & Robertson note, Williamson in particular has argued strongly that the pattern of 'vertical integration in an industry reflects a minimizing of the sum of production and transaction cost', 1989, p.362.
 20. The Pottery Gazette, August, 1891, p.733.
 21. The Pottery Gazette, March, 1890, p.223.
 22. Langlois & Robertson, 1989, p.363. They continue 'Central to the innovation of mass production is it's systemic character', p.367. Helper also argues that a 'systemic rearrangement of the production process benefits from vertical integration', 1991, p.797.
 23. Langlois & Robertson, 1989, p.362.
 24. Ibid., p.362.
 25. Helper, 1991, p.790. Moreover, though the 'expectations and capabilities generated by a given supplier relation system may be self-reinforcing....changes in the final-product market structure....may be destabilizing', p.790.
 26. Wilson, 1995.
 27. Lazonick, 1987, p.40-1.
 28. See both Langlois & Robertson and Helper for analyses of irreversibility of strategy in patterns of integration.
 29. Gay & Smythe, 1974, p.34.
 30. Langlois, R., 'Creating External Capabilities: Innovation and Vertical Disintegration in the Microcomputer Industry' Business and Economic History, Vol.19, Pt.2, 1990, p.95.
 31. Mass & Lazonick, 1990.
 32. Langlois and Robertson note that disintegration in the American car industry increased in the 1930s as manufacturers developed an 'appreciation of the flexibility that could be dervied from outside suppliers....As novelty became an important selling factor, firms were forced to change models more frequently. Moreover, the number of models produced by each firm multiplied. This reduced the economies of scale open to.... manufacturers, giving further advantage to the small parts firms', 1989, p.369-70.
 33. Helper, 1991, p.808.
 34. It is being argued that the disintegrated system of the Potteries was a 'viable modus operandi which was much more than a way of reducing transaction costs', Cookson, 1997, p.17.
 35. Pomfret, 1984. The partnership was a common form of business organization, both in the Potteries and nationally. Rose notes that prior to 1825 the 'Bubble Act of 1720 precluded the emergence of industrial joint stock companies, thus making the partnership the dominant industrial form....external sources of capital were much less significant to industrialists than their family and assocaites', Rose, M.B., 'The Role of the Family in Providing Capital and Managerial Talent in Samuel Greg and Company, 1784-1840' Business History, Vol.19, No.1, 1977, p.37.
 36. Pomfret, 1984, p.169.
 37. Chandler has, of course, been the most persuasive and influential proponent of this

- thesis, arguing that British family firms rarely made the three pronged investment in production, management, and marketing upon which competitive advantage in mass-markets was increasingly to come to depend. Chandler's arguments have not been without their critics, see for example Lloyd-Jones and Lewis, 1994.
38. See Rose, 1977, & 1979, Nenadic, 'The Small Family Firm in Victorian Britain' Business History, 35, No.4, 1993, also Church, R., 'The Family Firm in Industrial Capitalism: International Perspectives and Hypotheses' Business History, 35, No.4, 1993. As an example of the difficulty in generalizing about family firms it should be noted that constructing a typography of family firms, let alone predicting their behaviour, proves highly problematical. Where, for instance, does Shirleys, combining partnership, non-family succession, and family succession fit into the categorization proposed by Nenadic?
 39. Jesse Shirley was able to rely, like the Gregs, 'upon sons and other close relations to enter the firm, thus perpetuating the strong family tradition' Rose, 1977, p.39. By the 1880s the firm was controlled by Jesse's sons Jesse (1848-1927), Henry Benjamin (1858-1910), and John Bourne-Shirley (1851-?). Moreover, the fourth occupant of the works recorded in Rate Books in 1882, another J. Shirley, was possibly John Shirley, eldest son of Jesse's brother Joseph, recorded in the Census of 1861 as a clerk aged 15. The evidence from Shirleys again supports Nenadic, who identifies the 1880s as a watershed in the fortunes of small firms, after which 'small-firm profits were better able to provide an income for more than one member of the family'. There were, however, limits to this effect, when E.N.W. Bennett, youngest son of founding partner in highly successful hotelware specialists Dunn, Bennett and Co. entered the firm in 1910 at the age of sixteen he was quickly reminded by 'one of my older brothers, now married and commencing a family of his own....that there were already three elder brothers at the factory and one in the London office and there was not future for me whatsoever'. Just as the personally managed firm could be limited by the size and attributes of the family so the opportunities open to family members could be constrained by the growth and development of the firm. There were complex trade-offs to be made between family size, income, and succession in the firm, and the further growth of the firm. The nineteenth century family firm was indeed not a 'simple phenomenon'. Census, 1851 & 1861, Hanley Borough Rate Book, 1882; Nenadic, 1993, p.91-3; Bennett, E.N.W., 'Argentina Farewell', Privately printed pamphlet, p.45; Nenadic, 1993, p.109.
 40. Pomfret, 1984, p.156-8.
 41. Ibid., p.156-8. The example of succession from Bourne to Shirley suggests that we need to reconsider the relationship between firm and family. Pomfret argues that the survival of Bourne's firm beyond his death was exceptional because the 'absence of sons was usually fatal to the continuity of a family business in the last century'. However, this conclusion is based in too narrow a reading of the family firm, one which sees it simply as the nuclear family directly reconstituted in the economic sphere. Building on Nenadic's assertion that the family was one of the few institutions 'that operates according to rules that are non-market defined....maintaining stability in a volatile business world....characterised by low trust and morality and a chronic state of instability in the small firm population' it can be argued that family itself could be reshaped in order to serve the needs and priorities of the firm. As Nenadic notes 'aspirant Victorian businessmen extensively exploited family realities and mythologies'. Cookson, too, notes

- several cases of the family being shaped, through marriage, by business connections and interests. Furthermore, 'there is....a danger of idealising family firms when internecine strife was common'. Nenadic, 1993, p.86, p.89 & p.100; Cookson, 1997, p.8 & p.17.
42. Nenadic again provides useful contextualising material, arguing for the importance of a 'long period of stable trading prior to a change in formal status....the more stable the firm the greater the chances of surviving the transition' and that often transition 'in the family firm was seen as an opportunity for innovation and expansion rather than a cause of ossification', p.100-4. Scranton too notes that family succession need not equate to stagnation, very often in Philadelphia a 'son's entry in a context of shared authority could precipitate experiments in marketing, styling, or technology. The proprietary firm was more erratic than its bureaucratized counterpart for it centred on people rather than procedures', 1989, p.166.
 43. Joseph Shirley's mercantile business was for the most part carried on with Anthony Luke and Co. of Charleston in St Austell Bay, Cornwall. Details of one transaction can illustrate some of its characteristics. On January 13th 1845 Shirley bought 93 tons and 7cwt. of china stone from Luke and Co. The stone was shipped on the 'Jane' and thence from Runcorn to the Potteries by the Bridgewater Trust. The load itself cost £70-0-3 and transportation £34-4-6. The day after it arrived 5 tons were sold to Wm. Baker & Co. of Fenton for £5-15-2. The remainder was sold to the well known firm of Wm. Davenport of Longport, on the last day of January for £107-7-4. These sales were clearly recorded as being made from the load carried on the 'Jane'.
 44. Nenadic notes that the family 'provided the entrepreneur with one of the best vehicles for reducing transaction cost through improved "intermediation" on the basis of family reputation-an especially important strategy for firms engaged in retailing, wholesale, and commodity broking', 1993, p.89.
 45. Cookson, 1997, p.6.
 46. Ibid., p.7. However, Cookson's discovery of co-operative behaviour may be related to the periodization of her study and she suggests that the co-operative mode was a developmental stage destined to end around the mid-century, thereafter a 'network of sorts survived, as a framework within which small firms could trade, train, and commune, and as a support to help counteract uncertainty. But it lacked the autonomy and all-inclusive nature of the network of old', p.12. It was perhaps in this less cohesive state that networks in the Potteries existed late in the century.
 47. Rose, 1978.
 48. Rose, 1977, p.39.
 49. At Bells Mill (RV £110) there was in 1872 an engine, flint and colour pans, washtubs, reservoir, machinery and yard, at Etruria Vale (RV £240) there was a second engine, further pans and machinery, a yard, and canal frontage. At the third site, also at Etruria Vale, were bone sheds, boilers, stabling, offices, a weighing machine, crane and wharf (RV £25). Hanley Borough Rate Books, 1872 & 1882.
 50. See chapter 3 of this work.
 51. Nicholas places great stress not only on the nature of the goods being, i.e. whether or not it was standardized, but also on the frequency of transaction, as determinant of contracting costs, 1984.
 52. Ledgers, 1857, 1867, & 1884.
 53. Ledger, 1857.

54. Ledgers, 1867 & 1884.
55. Nicholas, 1984.
56. Ledgers, 1857, 1867, & 1884.
57. Ibid.
58. Ibid.
59. Ibid.
60. Ledger, 1884.
61. Scranton, 1991, p.35.
62. Helper, 1991.
63. See Helper, 1991 & Hirschman, A., Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations and States, 1970.
64. Helper, 1991, p.781 & p.789.
65. Ibid., p.802.
66. Ledgers, 1857, 1867, & 1884.
67. Hanley Borough Rate Books, 1862, 1872, & 1882; Ledgers, 1857, 1867, & 1884.
68. Ibid.
69. Moss, 1981, p.29. Though the Rate Book of 1882 clearly shows Bell Mill as being unoccupied wage books from 1884 show that some wages were still being paid in connection to this site, though at a much reduced rate and less often, suggesting that these payments were for maintenance work. Just as was true of the large integrated manufacturers under-utilization did not necessarily result in divestment of a valuable resource for Shirleys.
70. The Pottery Gazette, February, 1893, p.127.
71. The Pottery Gazette, August, 1896, p.714.
72. The Pottery Gazette, March, 1883, p.263.
73. The Pottery Gazette, September, 1883, p.160; Ledger, 1857; Time Book 1880-1885, & Pomfret, 1984, p.160.
74. The principle change seen in employment patterns at Shirleys in the period under study was the decline in seasonal or part-time working. The workforce did not grow dramatically in absolute terms but those workers employed for all or most of the year came to represent a much greater proportion of the overall workforce.
75. Manufacturers showed as keen an interest in the state of the weather as they did in that of the markets. It was reported in February 1891 that 'The principal topic of manufacturers during the past month has undoubtedly been the weather. It has been cold. Clay was frozen, pumps were frozen, water ceased to run, clay became scarce and flint scarcer, and it seemed in some quarters as if orders were congealed too'. The Pottery Gazette, February, 1891, p.151.
76. The Pottery Gazette, March, 1897, p.315.
77. Wage Books, 1844, 1857, 1867, & 1884.
78. Scranton, 1991, p.35.

8: “AN INDISSOLUBLE MUTUAL DESTINY”: BUSINESS INSTITUTIONS AND THE POTTERIES INDUSTRIAL DISTRICT.

This chapter will explore the proposition that industrial districts encourage and depend upon the development of extra-firm institutions, which act to temper competition and foster co-operation. Such institutions emerge from the general tendency of firms in industrial districts to form networks at the local level through a variety of economic and social institutions and arrangements (1). Some economic networks in the Potteries were examined in the preceding chapter, and the second half of the nineteenth century saw a series of attempts to establish organizations able to represent the interests of the business community in North Staffordshire, and of the pottery industry in particular. These bodies included the North Staffordshire Exchange, the North Staffordshire Chamber of Commerce, and the Potteries Board of Arbitration. Though voluntary, these organizations were intended by their promoters to have a regulatory and unifying effect on the highly fragmented and competitive pottery industry. Their intended functions were, at times, explicitly interventionist, but each in turn failed.

It will be argued that the failure of these institutions was related to the fundamental problem of developing unity in the face of the ‘individual assumptions’ prevailing in the business community of the district (2). As a result these bodies failed to engender sufficient support or to develop a ‘distinctive collective identity’ (3). The failure of these institutions demonstrates the difficulty of creating cohesion in a highly competitive industrial district, and is a reminder that the concept of the industrial district is as yet vague on the conditions under which a balance between competition and co-operation will be struck (4). Furthermore, as the industry came under increased pressure in the 1880s and 1890s the earlier institutional failures became a symbol of the industry’s problems, focussing attention on the issue of its highly competitive structure.

In order to explore these issues, the first section of the chapter will deploy the conceptual framework of Alfred Marshall, who viewed institutional forms as key agents in the historical evolution of industrial districts (5). Marshall’s model has undergone considerable refinement.

Piore, Sabel and Zeitlin, in particular, have reinvigorated the concept, emphasizing the role of qualitative factors in encouraging innovation and flexibility in industrial districts (6). More recent developments have sought to explore the mechanisms whereby the 'social embeddedness' characteristic of clustered industries constrains and facilitates economic actors, in particular by promoting trust and tacit understandings (7). In the second section a brief chronology of institutional developments in the Potteries will be provided, and this will be related to broad shifts in the structure of the industry, in the competitive environment in which it operated, and in the strategies firms deployed. The third section will then examine the causal factors responsible for the failure of institutional developments in the Potteries. The central role of a group of leading businessmen in the establishment of these institutions will be explored, and their aims and objectives outlined. Four factors contributed to the failure of this hierarchy to provide a focal point for collaboration (8). Firstly; the atomistic structure of the industry, and in particular the divide between a few large firms and the mass of small enterprises; secondly, cultural divisions, closely related to those of structure and rooted in issues of religion, politics, place of birth, the age of firms, and in the prevalence of personal capitalism within firms; thirdly, sectoral divisions, particularly between earthenware and china manufacturers; and, finally, civic rivalry between the six townships of the district (9).

The picture that emerges is a complex one. Each of the factors identified were inter-related, but above all else it was structural divisions which were the prime factor in the failure of the pottery industry to identify and act upon a set of common business interests. A final section will provide basic conclusions as to how this investigation of institutional developments in the Potteries can inform our understanding of the historical evolution of industrial districts. In particular, it will be argued that there is a need to further refine the concept in order to gain a deeper understanding of the diversity of industrial districts.

8:1 Institutional Forms in the Concept of the Industrial District.

The concept of the industrial district was first given coherent form by Alfred Marshall, who attempted to define the characteristics and attributes of industrial districts. Most relevant

here is Marshall's focus on the ways in which co-ordination occurs between firms within industrial districts. His preference is clearly for what may be termed market co-ordination, and he notes that

The broadest, and in some respects most efficient forms of constructive co-operation are seen in a great industrial district where numerous specialized branches of industry have been welded almost automatically into an organic whole (10)

Here he is referring to the kinds of network explored in the last chapter. Nonetheless, he is also interested in conscious co-ordination, in the 'various forms of co-operation in which there is some constructive purpose' (11). Marshall argues that the principal benefit achieved through association is that derived from 'parcelling out of demand for various sorts of the same class of products (so) that each business can specialize its plant on a narrow range of work, and yet keep it running with but little interruption' (12). In other words, association can act to guarantee realization of the external economies of scale characteristic of industrial districts by encouraging firms to concentrate on core competencies

Marshall's ideas have been developed along both empirical and theoretical lines by Piore, Sabel, and Zeitlin. These historians, however, place greater emphasis than Marshall on the social dimensions of industrial districts, and assign to conscious co-ordination a more central and positive role. For Marshall, the most important attributes of an industrial district were external economies of scale and progressive specialization by firm, whereas Piore, Sabel, and Zeitlin place their main emphasis on the emergence of flexible specialization (13). They define the industrial district in terms of three characteristics; i. a 'highly differentiated' relationship with the market, in which products are 'constantly altered', ii. the use of multi-purpose technologies, and, iii. 'regional institutions that balanced co-operation and competition among firms so as to encourage permanent innovation'. Institutional arrangements are not subordinate to markets and technology, the three characteristics are 'mutually dependent' (14). They identify three basic institutional forms; the municipal system, the paternalist or welfare capitalist firm, and the federated family firm (15). In order for an industrial district to exploit its adaptive and innovative potential these institutions are

required 'to create an environment in which...firms are discouraged from reducing wages and cutting prices rather than creating new products and production processes' (16).

Piore, Sabel, and Zeitlin claim that through such institutional arrangements industrial districts are able to develop a 'distinctive combination of industrial fragmentation and commercial co-ordination'. However, they also contend that this co-ordination is rarely achieved, in Marshall's terms, purely automatically, but that it requires 'policing' (17). The effectiveness of this policing is, in their analysis, a function of the district as a whole and, in particular, of a powerful identity of common interests inculcated from birth. Thus, 'each new generation' through 'automatic and collective induction...learned the rules of competition and whom they could trust to abide by them'. This identification of common interests penetrated deep into the life of the district, attached moral sanctions to certain behaviour, and 'created a community across and within generations that protected the economy as a whole against the consequences of short-term calculations of advantage' (18). Their analysis of this community of interests bears some resemblance to Marshall's concept of 'industrial atmosphere', but is more complex and instrumental. Indeed, Staber argues that Piore and Sables 'analysis of territorially bounded networking goes beyond standard agglomeration and transaction cost reasoning by emphasizing the *qualitative* social and institutional factors which facilitate quantitative external economies of co-location' (19). Thus, where Marshall was interested in the free interplay of market forces and in the ability of 'industrial atmosphere' to give firms competitive advantage in international markets, through guaranteeing supplies of skilled workers for example, Piore, Sabel and Zeitlin focus on the role of the district in moderating internal competition. In fact, they pay little attention to the firm, their focus is firmly on what Scranton has called the 'broad vitality of the industrial district' (20).

The differences between Marshall and Sabel and Zeitlin are, however, largely in emphasis. In particular, both analyses recognize that industrial districts, consisting of clusters of many small and medium-size firms, depend upon co-ordination, and that co-ordination is typically sought through a balance of conscious and automatic action. Explaining this balance between competition and co-operation has now assumed a central position in research on

industrial districts. However, Marshall's enthusiasm for association was limited. He noted the 'desire to get the better of others in buying or selling' which characterizes many examples of association, and 'develops a strong and even anti-social temper in a few of them'. Moreover he believed that specialization by firm could be 'thoroughly effected without conscious effort....especially in those branches (of industry) which are in the hands of a multitude of independent businesses of moderate size' (21).

This sounds much like a description of the Potteries, and much work on industrial districts has tended to be highly empirical. Marshall and Piore, Sabel, and Zeitlin make reference to a number of common examples, including Sheffield and Solingen. Interestingly, Marshall derived one of his few examples of 'pure constructive cooperation' from the pottery industry, quoting at length from the literature of the British Pottery Manufacturers Association. Marshall claimed that this body had

among its purposes "to deal with the quality, supply, purchase and control of raw materials and stores, where desirable, in the interests of members, to deal with all questions relating to cost and conditions of transport; to consider means of facilitating the extension of the export trade, to bring about close relations with the technical arts and design sections of the pottery schools, to promote general propaganda and to undertake advertising in connection with the industry, to consider the best means of utilizing improvements, inventions and patents for the general good and advancement of the industry, to deal with all matters connected with more economical production, including costing, to watch national and local legislation affecting the industry". (22)

Marshall concludes that in this case 'Cooperative action....does not seem to involve centralized control' or any 'drift to use it as a means of maintaining prices at higher levels than would otherwise prevail'. There is, however, reason to suppose that Marshall overestimated both the cohesion and the impartiality of this body.

Four years before the publication of 'Industry and Trade' the pottery industry had been represented at the 1907 Truck Acts Committee not by the British Pottery Manufacturers

Association but by the Joint Committee of the Pottery Manufacturers of Great Britain. The frequent reforming and renaming of organizations was also typical of the industry in the nineteenth century. Moreover, it is clear from the evidence of William Burton, Chairman of the Joint Committee and an ex Wedgwood chemist, that his organization did not represent the whole industry, for ‘outside our association there are a certain number of pottery manufacturers over whom we have no control and for whom I cannot speak, against whom all these things are alleged’ (23). Burton was attempting to draw a distinction between ‘rough’ and ‘respectable’ firms, much as some in the Exchange and Chamber of Commerce had done three decades earlier. He also acknowledges his associations inability to sanction non-members. It will now be shown that similar forces and tensions hindered the institutional developments of the late nineteenth century.

8.2 Institutional Developments in the Potteries, 1850-1882.

This chapter examines three key institutions active in the years 1851-1882; they were, the Potteries and then North Staffordshire Chamber of Commerce, the North Staffordshire Exchange, and the Potteries Board of Arbitration. Though having distinct functions these institutions were closely related, but the Chamber of Commerce could trace its origins to the late eighteenth century.

Informal association between the pottery manufacturers of the region began in the 1760s in connection with turnpikes, was put on a more formal though still temporary basis in the early 1780s, and culminated in late 1784 in the formation of a ‘Committee of Commerce for the Manufactory of Pottery’ (23). However, as Bowden noted, ‘The history of these early organisations of great industrialists is in many cases extremely obscure, and it is difficult...to distinguish between informal or temporary groupings for concerted action in specific cases, and formally constituted bodies for exerting continuous pressure on economic policies’ (24). This judgement remained true of the Potteries Chamber of Commerce in the first half of the nineteenth century. A Chamber of Commerce was again formed in 1831, to regulate prices, but was largely inactive until 1836 when it responded to the formation of the National Union of Operative Potters. Though the manufacturers had ‘failed to organise successfully to fix

selling prices' they were 'determined to fix piece prices' (25). This pattern was replicated in manufacturers organizations throughout the rest of the century, combination was always more effective in response to pressure from trades unions than from the market or other firms within the industry.

With the unions defeated in the Great Strike and Lockout of 1836 the Chamber again became dormant until it was 'resuscitated' in 1851 and 'for many years continued in full vigour' (26). Much of the strength of the Chamber in the third quarter of the century has been attributed to the leadership of its first Chairman, M.D. Hollins. During this period the Chamber, meeting fortnightly, established a 'Commercial Tribunal' for the 'settlement of mercantile disputes', committees to regulate the size of wares and the terms and conditions of employment of apprentices, and lobbied the Treasury for reduction in the indenture stamp (27). The Chamber also reacted decisively and successfully to a strike among cratemakers in 1853, closing 50 factories, but in 1860 failed to defend its Foreign Price List in the face of violations by smaller manufacturers. In 1866 a lockout, though prosecuted 'with the perfect unanimity of the employers', was unsuccessful in defending annual hiring (28).

The Chamber was clearly becoming weaker during the late 1860s and collapsed at some point in the early 1870s, it being noted in 1874 that it had been active 'until lately' (29). The Chamber was reconstituted in 1874. The immediate spur to attempts to strengthen the association was the growth of trade unionism in the industry, the body being 'instituted as a counterpoise to those combinations' (30). However, these moves also had a wider purpose, which was to

form into one general association the different commercial institutions which have hitherto existed in North Staffordshire,and to ally them together under the name of a Chamber of Commerce for the whole district....Our object is to amalgamate and embrace all classes of Manufacturers. (31)

The Potteries Chamber of Commerce became the North Staffordshire Chamber of Commerce, enlarged to include the iron, steel, and coal industries of the district alongside

pottery. Nonetheless, membership, which had begun to fall before 1874, continued to decline and by March 1882 stood at just 64. By January 1883 the trade press was reporting rumours of the ‘move that is being made to resuscitate the “Chamber of Commerce” at Hanley’ (See Appendix F, Table: 1: for details of membership and committees) (32).

A second key institutional development was the North Staffordshire Exchange, which existed for a few months in 1859 and then from 1875 to 1882. The first meeting of subscribers to the proposed Exchange was held on January 17th 1859. Present were 26 of the eighty or ninety firms and individuals who had already subscribed. Rules and Regulations were agreed upon, a 14 strong Committee of Management established, and Mr. Wm. Bates unanimously elected first Chairman (See Appendix F, Table: 2: for details of Committee, and the Rules and Regulations). The inaugural session of the Exchange was held on February 8th and it was felt that ‘eighty names of subscribers seems....a very hopeful sign’. The meeting of April 5th was ‘one of the largest and most influential....yet’. However, by May of the same year attendance had begun to fall, the Exchange had ‘drooped’, and on October 4th ‘terminated its short existence’. The few members present resolved that

seeing with regret that the attendance on the ‘Change had not improved since the meeting in July, (we) are of the opinion that it would be useless to continue the Exchange any longer, and....resolve to close the same at once, but with a hope that ere long the advantages of an Exchange will be more generously appreciated and an Exchange for North Staffordshire permanently established. (33)

It was concluded that the ‘time had not yet arrived when the district generally could appreciate’ the advantages of an exchange, but there was no thorough analysis of why the Exchange had failed in 1859 (34). The general growth of the industry was perhaps seen as a sufficient condition for success, the second Exchange emerging from the reformed and enlarged North Staffordshire Chamber of Commerce of 1874.

The two institutions were intended to complement one another. It was hoped that ‘if the Chamber of Commerce were successful an Exchange would grow out of it’ (35). It was

decided that ‘ample time should be given for consideration of the subject’ and the Exchange was not re-opened until early 1875. The new Exchange was considerably larger than its predecessor and at its opening could boast 160 subscribers, ‘representing all the great interests and principal establishments of the district...including most of the leading ironmasters, colliery proprietors, china and earthenware manufacturers, professional men and tradesmen’ (See Appendix F, Table: 3: for details of the Committee of the second Exchange) (36). The greater size of the second Exchange was reflected in its greater longevity and by January 1877 it was felt that the organization could ‘now be looked upon as one of the permanent institutions’ of the Potteries. It was recognized nonetheless that without such a central, inclusive institution the district was ‘materially weakened’, thus there was issued an appeal

to the manufacturers, the ironmasters, the coal owners and managers, the agents and all who have the welfare of North Staffordshire at heart, to attend the Exchange every Wednesday, to do as much business as they can there, and to encourage their friends to imitate their example, for by doing so they guarantee its success. (37)

However, by early 1878 membership, though still standing at 131, had begun to fall, and in January 1881 the Exchange was suspended for a period of two years following a collapse in attendance. The suspension was subsequently confirmed as permanent.

The Potteries Board of Arbitration, the third key institutional form developed in the Potteries faced quite different problems. The Board was founded in 1868 and owed much to the advocacy of union leader William Owen, who drew inspiration from a similar body founded in the Nottingham hosiery trade by A.J. Mundella in 1860. Aware perhaps that in Nottingham leading manufacturers had ‘benefitted from improved industrial relations and uniformity of rates’ arbitration was taken up with enthusiasm by leading firms in the Potteries, the 70 to 80 manufacturers who joined, claimed by trade unionist Arthur Hollins to employ 80% of the districts workforce, were essentially the same grouping who formed the core of the Chamber of Commerce and the Exchange. M.D. Hollins, Chairman of the

Chamber of Commerce for over twenty years from 1851, was the Board's first President (38).

The involvement of an important union figure in the formation of the Board would seem to indicate the establishment of friendly and co-operative relations between capital and labour in the Potteries, a factor recognized in recent research as important to realizing flexibility in disintegrated business networks (39). Indeed, Church claims that the board in Nottingham was instrumental in allowing large manufacturers to 'build up stock without fear of being undercut by unfair employers'. According to Mundella the whole tenor of the hosiery trade was altered. The question was no longer 'who shall screw down wages the most' (but) who shall buy the best material and produce the best article' (40). Thus, the large manufacturers active in the Potteries Board largely viewed it, as they did also the Chamber of Commerce Exchange, as a means for creating greater stability in various aspects of the trade, not only in terms of wage levels but in the whole process of negotiation.

However, the Potteries Board, which was intended to function when disputes arose over the interpretation of existing annual agreements, always made at Martinmas, largely failed to develop more conciliatory arrangements between employers and workers. Instead, the unions quickly 'fell into the trap of using arbitration as a substitute for annual negotiations', a situation which proved advantageous to the manufacturers (41). In Nottingham too the unions eventually became 'completely reliant on the success and continuation of the Board, having rejected the policy of negotiation from strength', whilst, more generally, it has been argued that arbitration 'contained and disarmed' trade unionism 'at a significant stage in its growth' (42)

Initially, the manufacturers refrained from using the Board to push through wage reductions, fearing that if they did they would be unable to resist demands for price reductions from buyers. However, manufacturers began to face an increasingly hostile environment from the mid-1870s, and in both 1876 and 1879 a reduction of 10% was demanded and, under the Chairmanship of Lord Hatherton, awarded in 1879. As in many arbitration processes from this period Hatherton's decision was guided largely by falling selling prices and 'a vague

opinion on the “general state of the trade” (43). Separate branch submissions for the restoration of ‘Hatherton’s pennies’ were made by the unions in 1880 but were refused by the umpire, Thomas Brassey M.P. Defeat led the unions to discuss both federation and withdrawal from a Board that had disappointed their expectations. This latter move played into the manufacturers’ hands, who, in 1881, refused to reconvene a body that they now claimed had been destroyed by the men. During the ensuing strike the manufacturers held firm, in part through the co-operation of those still working who refused to engage new hands without a written note of dismissal from their previous employer, forcing operatives back to work after six weeks.

Thus, in November 1882, at the first annual hiring after the strike, the manufacturers were able simply to refuse to negotiate, confirming the pattern of employer strength in the arbitration process. However, attention to the national picture demonstrates that unions tended to be disadvantaged in all industries where arbitration was tried. The example of the Potteries Board clearly fits in with Porter’s finding that

the majority of wage arbitrations took place during the great depression....when only 9 out of the 61 wage awards gave advances whilst 35 gave reductions....the greatest concentration took place between 1874 and 1879, when the fall in average selling prices was particularly rapid (and) only two advances were made in comparison with 28 reductions. (44)

As elsewhere umpires in the Potteries tended to be ‘lawyers, politicians, or employers...it is unlikely that they would have been invited to arbitrate if they had not shared the conventional view of political economy’ (45). The result was that when, for example, unionist George Bloor asked to see manufacturers’ books during the arbitration of 1880, arguing that the ‘manufacturers knew what the men were earning but the men knew nothing of the income of their masters’, his appeal was rejected as ‘opposed to every principle of political economy’ (46). Thus, the success of pottery manufacturers in using arbitration to force through wage reductions says little about their unity. Willingness to use the mechanism in this way can instead be seen as tacit acknowledgment of the intensely competitive nature

of the industry. Moreover, it was a tactic likely to exacerbate that competition, whilst also being at odds with the industrial district model.

The Board was not officially terminated, with the agreement of both sides, until 1892, but was only very intermittently active for the last ten years of its existence. The example of the Board of Arbitration also serves here as a contrast to the other institutions, for it was the only one in which its unrepresentativeness did not prove a bar to achieving the manufacturers aims. The inability of the Board, as limited in its membership as the Exchange or Chamber, to apply sanctions to or otherwise coerce non-members did not matter, because the firms which did not participate were very unlikely to pay wages higher than those set at arbitration (47).

These institutional developments took place against a background of clear growth in the size of the industry and changes in the competitive environment facing the industry. As was argued in the previous chapter these forces had led in turn to change in the strategies pursued by many firms. Changes to structure, environment, and strategy together form the context in which these attempts to build organizations, identify common interests, and act in unison occurred. The growth in the size of the industry, through both the growth of surviving firms and the appearance of many new entrants, appeared to have enlarged the potential constituency of these institutions. Indeed, Sabel and Zeitlin explicitly associate 'municipal' institutional forms with 'dispersed' production. However, despite the considerable growth shown by a handful of well established and already large firms, such was the volume of small new entrants that, as was shown in chapter 2, both average firm size and levels of concentration declined throughout this period. These trends had become particularly marked by the early 1880s when institutional collapse occurred. Many small new firms were owned and run by operatives turned businessmen, the industry's structure was associated with a high proportion of first-generation entrepreneurs, using ageing plant and financially insecure.

Moreover, as the structure of the industry was becoming increasingly competitive so the external environment was also becoming more hostile. Foreign competitors emerged for the

first time, tariff barriers were raised in important markets, and prices experienced sustained downward pressure. The industry appeared to many to be facing 'crisis' in the 1880s and 1890s. Within these long-run changes it is possible also to discern relationships between short-term cycles and the institutions in question, in terms of both their formation and failure. Thus, for example, at the time of the first Exchange in 1859 the Sentinel, a local paper, noted that the trade was characterized by a 'torpid state of affairs' and a 'timid convalescence which, in the midst of abundance, still recalls the commercial panic'. In 1874, the year in which the Potteries Chamber of Commerce sought to bolster its membership by opening its doors to the non-potting trades, there was by a sharp fall in the declared real value of British ceramic exports, from £2,048,872 in 1873 to £1,738,340, and the years 1879-1882, leading up to and culminating in the collapse of both the Exchange and Chamber, were also marked by a clear downward trend in ceramic prices (48)

However, the relationship between trade depression and institutional developments was complex. For some firms in the Potteries depression acted as a spur to association as a defensive measure, but, as will be seen, deep seated problems of co-ordination within the industry and low levels of trust drove others to reject the same path. Similar trends can be seen in other industries and regions. Scranton found that in Philadelphia 'each crisis led some manufacturers to confront collectively the contingency confronting their operations', but, 'Whether due to "possessive individualism" or sheer cussedness', these attempts failed to gather a 'sufficient....critical mass' (49). Farnie ties the fortunes Manchester Royal Exchange, as expressed in fluctuating levels of membership, to trade cycles. However, the link he proposes is less straight forward than that seen in the Potteries. Thus, whilst the number of subscribers 'increased during times of boom', only a 'severe and prolonged depression' would result in a fall in membership. However, Farnie was observing these effects in a much larger, well established body, not one trying to secure its position. We may thus expect the impact of trade cycles to have been more severe in the case of the North Staffordshire Exchange. However, the contemporary press in Manchester believed that 'It may even be said that the worse the business is, or, in other words, the more difficult it is to obtain business, the more necessary it is to become a member of the Exchange', highlighting

again the tension between defensive, collective reactions to depression on the one hand and calculative, individualistic reactions on the other (50).

Thus, institutions did not fail simply because of the impact of either short or long-term trade cycles, though recent studies by Sydow and Gertler and Rutherford have questioned the “‘flexibility of flexible specialisation”, especially in recessionary times’ and found ‘mutual distrust among hard-pressed enterprises’ (51). Instead, it is necessary to consider together these cycles and those shifts happening in the structure of the industry. As was shown in the preceding chapter change in the competitive environment were accompanied by changes in the strategies used by firms in the Potteries. In particular, firms turned increasingly to reactive, contingent strategies; in other words they placed greater demands on the ability of the district to effect ‘automatic’ co-ordination. At the same time these strategies were accompanied by a decrease in the stability of relationships between firms trading with one another within the district (52). Congruent with this was the rising tide of complaint about the behaviour of some firms, particularly small firms, seen in the trade press. Some also associated ‘unfair’ or ‘illegitimate’ business practices with the china manufacturers of the southern townships, Longton and Fenton, further exacerbating tension by giving it an explicitly civic and sectoral dimension.

The pottery industry was then increasingly populated by ever more firms, often using outdated and limited resources, financially weak, exploited by buyers and agents, and less attuned to the ‘moral economy’ of industry and district posited by Sabel and Zeitlin. Simultaneously, Hanley appeared to becoming ever more powerful in both industrial and civic terms. The structural, cultural, sectoral, and civic balances of the district were all developing in ways likely to inhibit association. These changes will now be explored in more detail and related to the structure, functions, aims, and failure of the institutions in question.

8.3 The Social Context of Institutional Failure.

These key institutions had two broad aims, to regulate the industry and to unify it. In terms of regulation they sought to stabilize the prices and supply of inputs, particularly raw

materials, and to stabilize selling prices and wages. Unity was to both grow out of and reinforce this increased stability. The chapter will also highlight a third aim, that of projecting the district as a whole in both national and international terms. The Sentinel was careful to stress that this greater unity and stability would not result in a loss of competitiveness. Indeed, individual advantage was seen as a product of association. The Exchange would promote 'the truth that the more enterprising and united a district is the more prosperous its individual members must be'. It was in effect acknowledged that the 'district model favors cooperation only insofar as collaboration has competitive consequences' (53).

An examination of the key institutions operating in the Potteries highlights the role played a small group of leading businessmen. Small-scale business may have predominated numerically, but large local pottery manufacturers, despite arguing to the contrary, were highly influential in promoting various sections of the industry through these trade institutions. A good example of such men was Col. Michael Daintry Hollins, Chairman of the Potteries Chamber of Commerce from its revival in 1851, first President of the Potteries Board of Arbitration from 1868, and a member of the Committee of Management of the Exchange of 1859. An examination of the career and profile of Hollins and others active in promoting greater organization will illustrate the range of structural, cultural, sectoral and civic divides that inhibited these institutions from becoming established in the district. Effective 'social embeddedness' cannot be read off in a simple way from the mere fact of intense spatial clustering. A survey of pronouncements from and about the Exchange and other institutions will then demonstrate the extent to which sectional interests were reflected in the aims and functions of these bodies.

Born in Manchester, in 1815, and trained as a doctor, Hollins had many connections with the Potteries and the pottery industry. Related by marriage to the Minton family he joined this important and influential firm in 1839, as head of the commercial department. He was made a partner in 1845, the firm trading at that time under the name of Minton, Hollins and Co., and took control of the tile department. When Herbert Minton died in 1859 he assumed joint partnership of the firm with Colin Minton-Campbell. In 1868 the partnership was dissolved,

the tile department, under Hollins' control, became an entirely independent company and moved to a new factory at Cliffe Vale, Stoke-upon-Trent. This firm, with an RV of £1,4332 in 1879, fell into the giant-size category. Hollins' non-commercial interests and activities spanned a panoply of civic positions and voluntary organizations. He was a Justice of the Peace, Improvement Commissioner, and Chief Bailiff for Stoke-upon-Trent, and represented the town on Staffordshire County Council from 1888-90. He was a Colonel in the Local Volunteers, contributed financially to many local churches, and always lived close to the Potteries, dying in 1898 at Whitmore Hall, situated in a village just a few miles to the west of Newcastle-under-Lyme (54).

Other businessmen active in promoting association displayed similar profiles. Colin Minton-Campbell, Hollins' partner at Mintons between 1859-68, was a leading proponent of the second Exchange of the 1870s and early 1880s. Campbell too came from outside the Potteries, joining the firm of his uncle Herbert in 1842. By the 1870s he controlled both Mintons and the Campbell Tile Co. and had rentier interests in local rail and water supply companies. His activities outside business were, if anything more numerous than those of Hollins. Elected M.P for Stoke-upon-Trent in 1874 he was also Mayor of that town from 1880-3, Deputy Lieutenant of the County in 1868 and High Sheriff in 1869. He contributed generously to local churches, to other charities and public works, gave land for a library, served as an officer in three local military bodies and also continued to live in North Staffordshire until his death. Robert Heath, coal and iron master, founding subscriber to the first Exchange and first President of the second Exchange, was likewise an M.P. for Stoke-upon-Trent, and Deputy Lieutenant and then High Sheriff of Staffordshire (55).

Though Berghoff has stressed the specificity of nineteenth century British business elites, arguing that 'In reality, provincial business communities offer a colourful picture of highly diverse local elites' existing under 'very different social and economic conditions', the example of Hollins, Campbell, Heath and others supports his further conclusion that 'quite universal features' can be discerned, and these

seem to have been a high willingness to support political parties, to stand for local election contests, to accept seats on town councils, to join the magistracy and the staggeringly time and money-consuming involvement in charitable movements of all sorts...Rich businessmen were often local worthies, just as local worthies often were rather wealthy. (56)

However, more important than their fit with the national picture is the degree of alignment between the profiles of the business elite in the Potteries and local norms. Here, a number of wide gulfs can be found, including in religious and political allegiances. A series of comparisons drawn from the work of Berghoff and Moller will emphasize the breadth of these divisions in the Potteries.

Religion has long been posited as an important element in business networks. Caunce has recently suggested that the prevalence of Non-conformism, and an almost complete absence of Anglicanism, contributed to the cohesion and dynamism of the woollen industry in the West Ridings, and Staber has argued that religious beliefs are 'possible meaning systems supporting business cooperation', sustaining 'community values which span social classes and thus play an integrative role in dynamic districts' (57). In both Manchester and Birmingham in the late nineteenth century, the 'Non-conformist community....represented the highest echelons of (the) political and social elite', but in the Potteries Hollins, Campbell, and Heath were all members of the Church of England (58). Their Anglicanism was shared by others playing key roles in the Chamber of Commerce, Exchange and other bodies. These included; pottery manufacturers Thomas Peake and William Webberley of the Committee of Management of the Exchange of 1859, W. Adams and E.C. Challinor of the Committee of the reformed Chamber of Commerce of 1874, and H.T. Davenport, solicitors F. Bishop and W. Keary, and mining engineer C.J. Homer of the Committee of the Exchange in 1875 (59). However, where Non-conformism predominated not only in the highest echelons of local elites in Manchester and Birmingham but also across the samples analyzed by Berghoff (55% in Birmingham and 52% in Manchester) Anglicanism was even weaker in the Potteries (60). In a sample of 116 businessmen active in the pottery industry of the nineteenth century, 72%

of those whose religious affiliations could be traced were non-conformists. Moreover, given the strength of non-conformism in the working population of the district, and the ease of entry into the industry and consequent degree of mobility between the workbench and the 'managers sanctum', it is probable that non-conformism was even more typical of the owners of small-firms, certainly under-represented in the sample, than this suggests (61). It was the unwillingness of just such small-firms and entrepreneurs to enter into association which, it will be argued, condemned the institutional developments examined here to failure

Hollins, Campbell, Heath, and the other Anglicans were also typically Conservative in politics. This again conflicted markedly with the composition of the wider business community of the Potteries, where, amongst the same sample of 116, just 25% of those whose political affiliations could be determined were Conservatives. Political and religious affiliations were central in the nineteenth century to building the informal local networks around which formal bodies were likely to be constructed (62). Political groupings around divisive issues were slow to emerge in the Potteries, there was for example no Fair-Trade movement to speak of, but this would not have precluded political differences being important at a personal level, if only because they reduced opportunities for social interaction. Thus, 'because business networking occurs not among organizations but ("boundary spanning") individuals who link organizations, it is important to pay attention to the microlevel social and political aspects of networks' (63)

Many of the leading proponents of closer association were differentiated from the wider business community of the district in two further important ways, by the age of their firms and by their place of birth. Comparison with the work of Berghoff would again seem to suggest that these were particularly powerful issues in the Potteries. Not only Hollins, Campbell, Davenport and Adams but also other important activists such as William Woodall, Godfrey Wedgwood, James Maddock, and the Ridgways, all represented multi-generational firms, many of them founded in the late eighteenth or early nineteenth centuries. Though Berghoff and Moller claim to have found very few examples of 'spectacular Smilesian operative-to-employer' careers, the proportion of first generation entrepreneurs in their sample, 52%, is not insignificant. However, in the sample of 116 Potteries businessmen used

here just 41, or 35%, came from families with existing interests in the pottery industry. The small-scale structure of the industry was clearly reflected in a higher proportion of first generation entrepreneurs (64). Furthermore, the central figures of Hollins and Campbell, though they had local connections, were both born outside the district. Whereas Berghoff and Moller found that 61% of 1,328 businessmen active in Birmingham, Manchester and Bristol between 1870 and 1914 were born outside those towns, 80% of the sample of Potteries businessmen were born in the district and its immediate environs. The centrality of the local population to the business community of the district was repeated in all other sections of the community, particularly, as is demonstrated in the work of Dupree, Hall, and Whipp, amongst working potters (65). Local roots played a vital role in the formation of the cultures of both the business and working communities of the district, and were a further attribute not shared by some of the leading promoters of association.

Many of those active in institutional developments in the Potteries in second half of the nineteenth century were then sharply differentiated in cultural terms from the mass of the business community. Moreover, a number of references allow us to infer that these issues did result directly in individuals not joining the Exchange and other institutions. For example, in April 1859 The Sentinel reported that 'we have heard individuals say they would have nothing to do with the Exchange because certain persons were its main projectors'. The paper counselled that 'to predict failure in such a case as this, and by absence, shaking the head, shrugging the shoulders, and whispering innuendoes against it-or by allowing mere personal antipathies to interfere would be unworthy of the enterprising men of this district'. Instead, it was argued, the Exchange would be 'just what our enterprising men-not merely what its projectors, but they and their successors-shall choose to make of it' (66). At the reconstitution of the Chamber and Exchange in 1874 M.F. Blakiston acknowledged that 'Knowing North Staffordshire so well, I know the importance of having as chairman one whose position was completely impartial. We all have our little jealousies, and must get over them as well as we can' (67).

This differentiation of the promoters of association from many in the industry was reflected in the institutions they attempted to build, which were unrepresentative in sectoral and civic

terms. This is demonstrated by an analysis of the composition of the Chamber of Commerce in 1866. In that year the Potteries Chamber of Commerce had 77 subscribing members and Keates Directory of the same year records a total of 215 pottery firms, a figure that probably did not include all the smallest firms. Thus, the Chamber represented, at most, 36% of manufacturers (68). However, if the membership figures are disaggregated by location then underrepresentation can be seen to have been particularly chronic in certain parts of the district. These figures are presented in Table 7:1.

TABLE 8:1 MEMBERSHIP OF THE POTTERIES CHAMBER OF COMMERCE BY LOCATION, 1866.

Location	No. of Firms	% of Total Pop	No. Joining Chamber	% of no. in Town	% of Chamber
Longton	68	32	10	15	14
Fenton	14	7	4	29	5
S-o-T	9	4	5	56	6
Hanley	52	24	29	56	38
Burslem	49	23	16	32	21
Tunstall	23	11	13	57	17
Total	215	100	77	-	100

Source: Keates and Fords Directory of the Staffordshire Potteries and Newcastle, 1866.

In other words, firms from the three northern townships of Tunstall, Burslem, and Hanley accounted for 75% of the Chambers' membership. In 1882 25 members, or 74%, of the 34 strong Council of the Chamber of Commerce were drawn from Hanley and Burslem alone. Fenton contributed just one council member and Longton none. At that time firms from Longton and Fenton represented 39% of the industry and those from Hanley and Burslem 48% It is not surprising that 'Longton manufacturers....held aloof from this institution under the impression that it was a clique of "large" makers on the "other side" simply to push their particular brands'; nor, as a corollary, that during the strike of 1881 it was reported that 'Longton stands aloof during the struggle' (69). Similarly, at least 57% of the Committee of Management of the Exchange in 1875 was composed of individuals and firms from Stoke-

upon-Trent, Hanley, and Burslem. Longton and Fenton together contributed at least 17% and at most 26% of the membership of the Committee (70).

Analysis of data from the 1882 trade directory suggests that the Chamber was unrepresentative of the whole industry not only in civic terms but also in sectoral terms, in particular china manufacturers were clearly under-represented. In Hanley and Burslem, which have been shown to have commanded a large majority on the Council of the Chamber, the industry was dominated by earthenware manufacturers. Earthenware manufacturers represented 52% of the total population of firms in the two towns, and china manufacturers just 6%. In Longton, heavily under-represented on the Council, china and earthenware manufacturers represented respectively 56% and 20% of the total population of firms (71).

However, the cultural, civic, and sectoral divisions outlined above did not apply to all those active in these institutional developments. Important positions in all the institutions in question were filled by members of prominent non-conformist manufacturing families. These included John Maddock, Edwin Powell, and John Ridgway. These non-conformists were also typically Liberal in politics. Some of the participants were china manufacturers from Longton. However, where men such as Ridgway were differentiated from Hollins, Campbell, and others by their religious and political affiliations they were united by the size of their firms, all falling into the large or giant size-categories. This may suggest that size of firm was the prime determinant of businessmen's attitudes to formal association. Given their characterization of the Chamber as a self-interested clique of large makers this was clearly the impression held by smaller firms in Longton, an impression confirmed by the tenor of statements made by both those active in the Exchange and other institutions, and by the local press.

These statements suggest that the Exchange, Chamber of Commerce, and Board of Arbitration were intended to fulfill three broad functions; to unify, regulate, and promote the industry as a whole. Thus, the Sentinel hoped that Hanley would soon boast 'capacious and majestic' Exchange Buildings, 'adapted to the development of our incalculable mineral wealth, to increase the fame and therefore extend the sale of our unrivalled pottery' (72).

The Exchange Buildings, never built, would not only be ‘consecrated to the spirit of enterprise’ but would also

prove a true mart of commerce....a temple of concord, equally sacred to the spirit of brotherhood, which shall animate those who have a common origin, common wants and an indissoluble mutual destiny; and a centre of intelligence from which shall go forth influences which shall quicken and reward legitimate emulation, but which shall cause hurtful ignorance to disappear, and before which willful prejudice and unholy jealousy shall expire (73)

This appeal to common interests was reinforced when, in August 1859, it was urged that ‘each individual must feel “I am the Exchange, unless I attend there will be no Exchange”’ (74). As Staber notes ‘pressures to conform to institutional expectations may be felt as persuasion, as when association leaders appeal to their members’ sense of solidarity’. However, he also argues that in the absence of coercive mechanisms, ‘regulative institutions’ are generally only ‘effective if they are *endorsed* by subordinates because they accept rules as fair and reasonable’ (75). Large manufacturers in the Potteries lacked both coercive power over and the endorsement of much of the industry.

The Sentinel was particularly fervent in its support for the first Exchange, proclaiming also that ‘The prosperity of this Exchange will qualify individual assumptions, defeat and ring the knell of local....monopolies, and supersede local sectional ascendancies by the elevation of the whole’ (76). The motivations of the proponents of association can be traced then, at least in part, to an identification of the divided and highly competitive structure of the industry and district with negative effects on individual firms.

These same themes characterized the relaunch of the Chamber of Commerce and Exchange in 1874-5. The bodies were intended to operate in tandem, ‘An Exchange is wanted to bring together the....various trades and interests of the district, while the Chamber of Commerce would bring the district into more intimate communication with the outside world’. Above all it was hoped that, in contrast to the experience of twenty years previously, ‘it will prove

that the different classes of manufacturers are not competing interests but that....the interests of each (are) connected with the interests of every other' (77). Burslem earthenware manufacturer Anthony Shaw not only hoped that through 'the exchange of commodities or money transactions....much might be done to facilitate their business transactions', but also that there 'would be....an exchange of ideas, and gentlemen would be able to meet and compare notes as to what was for the interest of the community at large'. M.F. Blakiston, Clerk of the Peace, enlarged on this theme, looking 'forward to the movement as a very important one', hoping that 'if there had been, as some said, local and petty jealousy in the past, it would be speedily supplanted by generous rivalry' (78).

Similarly, the report of the Council of the Chamber of Commerce claimed in March 1882 that the Chamber

is not a local institution, representing any one town; it is not a class institution, representing any one set of interests; it is not a potters' institution, though, unfortunately, the work has been chiefly left to potters to do. Lastly it is not a political institution, but the representative of all the commercial and manufacturing and mining interests of this important centre of industry.
(79)

However, as has been shown, the Chamber and Exchange clearly had come to represent the interests not of all but of a particular 'class' of manufacturers, located in particular towns within the district. The bias of these institutions was occasionally made explicit. Thus, when the Sentinel looked to the first Exchange to 'supersede local sectional ascendancies' it asserted that this end would be achieved only 'if....the majority of the leading manufacturers...will come into the project. They will, and then the smaller ones must. It is merely a question of time'. In August 1859 it was noted that still missing from the Exchange were 'many of what Mr. Grose....facetiously called "the dogs", but we suppose that we need not trouble about them, for if only the "hares" are there the dogs will most certainly follow' (80). The 'dogs' referred to small firms and the 'hares' to larger and more 'respectable'

business units, but the expression of such sentiments can only have served to further alienate the former from the latter.

It was then primarily the atomistic structure of the industry, and in particular tension between large and small firms, which inhibited the Chamber and Exchange from realizing their unifying and regulatory aims. Tension between large and small manufacturers, which increased throughout the last three decades of the century as trade depression continued, centred on the perceived negative impact on the whole industry of the presence of many small firms. Large firms argued that small firms were the principal cause of low prices, threatened the reputation of the district as a whole, and tended to worsen labour relations for all. In essence, large firms were advancing the belief that ‘Competition...is the soul of trade. However, there are limits to all things, and even competition in trade has reached a point at which it will be wise to halt’. They pointed to a spirit of ‘unhealthy competition...so ingrained...that manufacturers have, in cases which are known, accepted orders at an absolute loss’ (81). The Exchange and Chamber of Commerce were defeated by the very thing which they were intended to ameliorate, the atomistic, competitive structure of the industry. They could not generate the sense of common interests posited by Piore, Sabel and Zeitlin. As a result, the industry persisted with ‘individualistic, wasteful and extravagant methods of production, while by a better system 25% might be saved and the diminishing and lost markets be reconquered’ (82)

Similar problems have been identified by Scranton in his study of Philadelphia. For example, in Philadelphia the failure to ‘convince the tenloom men for whom every yard carried its tiny contribution to an accumulation of capital that would build *their* firms as Dornan, Bromley, and the others had built theirs’ regularly defeated collaborative schemes. The ‘small operators sought individual gain, not a restrictive collaboration with bigger firms that surely would the latter but cut deeply into his narrower base’ (83). As will be shown, it was again the search for ‘individual gain’ that defeated the few informal price agreements attempted in the Potteries in the two decades after the institutional failures of 1881-2. However, as Scranton suggests, institutional failure turned on practical as well as structural and cultural

factors. The function of the institutions, especially the Exchange, conflicted with the strategies deployed by many firms, whilst also adding to their need for working capital.

This conflict arose because the Exchange was intended to regularize, in a quite simple way, the flows of commodities and transactions taking place in the district. Mr. Bates, Chairman of the first Exchange, hoped that 'members would, as the firm he represented intended, set apart Monday for purchasing all raw materials and to fix to meet the sellers "on 'Change'". This they would do because 'it is ten to one but sellers of potters materials-local and distant-will make first to the Exchange; to the spot on which they shall meet with the greatest number of buyers within the shortest space of time, and with the least trouble' (84). The Sentinel added that members 'will purchase "on 'Change" whatever can be purchased by sample, or description-whether clays, colours, chemicals, grain, straw or other articles, and they will pay there too' (85). However, as was demonstrated in the last chapter, few firms in the Potteries ordered or paid for raw materials in such a rigid weekly pattern. To do so would very often have conflicted with the pattern of orders that they received, would have entailed either holding excessive stocks of materials or, on occasion, being unable to meet sudden demands, and would have required regular flows of ready cash. These problems have also been shown to have become more acute during the period in question as the industry's demand structure became more unpredictable and buyers asked for ever longer terms of credit. The Exchange conflicted with the 'automatic' co-ordination of the disintegrated system of the Potteries industrial district.

Moreover, the 'hand-to-mouth' strategies developed to meet these demands were particularly prevalent amongst small firms, increasing in number throughout this period. Given these strategies, small firms viewed 'automatic' co-ordination as means to achieving flexibility, not in order to innovate but simply to survive. The decrease in average firm size and industrial concentration in the last quarter of the nineteenth century thus worked against association, re-emphasizing the central role played by structural factors in the failure of the Potteries to generate formal bodies to supplement the institutional networks proposed by models of the industrial district.

In contrast, the strategies of the largest firms in the industry were evolving in ways that required greater stability. Some, as was shown in chapters 5 and 6, were developing agency networks in marketing with the aim of gaining more accurate information about, and perhaps greater control over, demand. Some were also integrating backwards into the sourcing and processing of more and more raw materials. A few had even switched from being buyers to being large-scale suppliers of important inputs. It has already been shown that earthenware manufacturer Anthony Shaw, active in both the North and South American markets, viewed the Exchange as a means of facilitating transactions, and it is likely, given the trends outlined above, that conducting all transactions on the Exchange would have reduced both information and transaction costs for some large firms. With economies of scale not decisive in the pottery industry the Exchange represented a way of giving greater structure to interfirm networks without internalizing more functions (86).

If the Exchange and Chamber of Commerce could not find the common ground on which to build an inclusive notion of the 'trade' then they were also unlikely to succeed in their third aim of raising the national profile of the industry and the district. A desire to emulate other manufacturing districts perceived to have higher national profiles did motivate the business elite of the Potteries. Berghoff, though claiming that the 'concept of the relative marginality of provincial entrepreneurs....seems to be gravely exaggerated', has observed a similar effect in Birmingham. The most famous and prestigious provincial exchange was the Manchester Royal Exchange, founded in the 1720s, and the 'great benefit which Manchester...had derived from the establishment of (an) Exchange' was referred to directly at the first meeting of the Exchange of 1859 (87). However, if the business elite of the Potteries were looking to the new Exchange to promote a greater identity of interests then Manchester was an ill chosen model. Farnie has described the Royal Exchange as 'the centre of the most important aspect of Manchester's life', centralizing 'the supply of information... as the indispensable basis for all transactions', but goes on to define it as 'an area of competition rather than of collaboration' and a 'slaughterhouse' (88). Furthermore, the Manchester Exchange kept alive the ideology which leading manufacturers in the Potteries believed supported the competitive structure of the industry by offering encouragement to under-resourced small capitalists. Farnie notes that the Exchange 'undoubtedly remained a seedplot of

individualism (and) a belief in the beneficial function of vertical mobility...was especially cherished by members of the Manchester Exchange'. Neither was the leadership of the two institutions comparable for in Manchester the 'Chairmen of the proprietors were typical "Manchester man" and were rarely recruited from the largest firms in the industry' (89).

A sense that the prominent local men involved in institutional developments in the Potteries felt frustrated on the national stage surfaced again at the Exchange of 1875. Anthony Shaw admitted that 'they were rather late in the field in establishing an Exchange' and Sir Charles Adderley, speaking as a outside observer, may have touched a raw nerve when he said at the opening of the Exchange that

He had always looked upon the Potteries as a most singular resemblance in modern times to the groups of Grecian republics which were always divided although they had common interests. It was not so much the multiplication as the division that he objected to. He objected to the way in which that important borough of Stoke-on-Trent, numbering a great deal more than 100,000 inhabitants, and having one of the most important industries, divides its counsel seven times over, and so reduces its influence, not only on the Legislature, but on the world with which its great trade was connected. (90)

This identification of division as an inhibitor of progress was echoed and extended in the Sentinel, which saw the small-scale structure of the industry reflected in a smallness of outlook or spirit.

Our district has attained great dimensions, become wealthy... It is high time that prejudices peculiar to small towns shall yield to ideas and habits more city like, more thoroughly national and cosmopolitan....Nothing will better serve (than the Exchange) to modify or extinguish local jealousies and animosities-the result mainly of narrowness of soul' (91).

As has been shown neither the Exchange or the Chamber of Commerce proved strong enough to serve this function, and in the last two decades of the nineteenth century

institutional developments in the Potteries were largely restricted to unsuccessful attempts to reach informal price agreements.

Calls for co-ordinated rises in selling prices had frequently been made in the trade press, but had rarely resulted in the active promotion of schemes until the 1890s. As competitive pressures mounted some firms turned again to a collaborative approach. However, those same pressures once more exposed the ineffective nature of local institutions, and competition again prevailed over co-operation. The first collusive attempt to raise prices after the institutional failures of 1881-2 took place in 1888, and was announced as a 'New Combination of Manufacturers: How to Save the Potting Trade'. The un-named members of the combination condemned 'Selfish isolation' and deplored the impact of intense competition within the industry. Small firms were condemned for dragging prices and reputations downward through producing lower standard products.

We do not quarrel with cheapness, if the cheapness is brought about without impoverishing the producers, but cheapness which tends to make the capital in a trade unremunerative and unsafe, and which reduces the labour towards the point of starvation ought to be subject to wholesome checks (92).

Implicit in this statement were two assumptions also held by some of those active in the Exchange and the Chamber of Commerce; namely that the behaviour of sections of the industry had a negative impact on all others, and that some forms of competition could be considered unfair or illegitimate. It was recognized that influence of small firms as a sector was growing and that large firms, though growing individually, were being disadvantaged by structural shifts. It was hoped that 'before long things will revert to a position somewhat similar to that they used to occupy, and that the larger manufacturers will be those who alone control the general spirit of the markets' (93).

The proposed combination received no further mention and for the remainder of the century no other alliance managed to replace division with unity. There was often such pessimism about these schemes that their failure was almost guaranteed. Each vulnerable manufacturer

felt that his own selfless action in pushing for higher prices, no matter how welcome they would have been, served only to leave his business open to the predatory actions of others. Thus, he too would refrain from alliance and join those hunting for any order that could be secured. This dilemma was expressed by an earthenware manufacturer in 1891

the primary cause of failure in all past combinations of manufacturers has been in the fact of a few grasping manufacturers holding aloof and there by getting orders whilst those in combination have been positively without (94)

It is quite clear that spatial clustering had not led manufacturers to trust one another in the Potteries. The next attempt at combination took place in 1898, when The Pottery Gazette reported that 'several large manufacturers have been engaged in the last few days in organising a meeting of manufacturers to consider the question' of prices, it being 'no secret that....selling prices of pottery, particularly earthenware, have for a long time been disastrously low' (95). The report urged 'upon manufacturers the wisdom of acting well together in a concrete body....The time is opportune for a careful and full consideration of the whole question, and we hope to see active co-operation' (96). As in the 1850s and 1870s the drive again originated amongst large firms (97). By August 1898 the meeting had been held and was 'absolutely agreed'. A temporary committee was appointed to consider the whole issue and report to a further meeting 'to be held shortly', but, despite the committees and meetings, the scheme was still being referred to as the 'proposed alliance in the earthenware trade' in January of the following year (98).

The response of 'A Manufacturer', highlighted the difficulties that such schemes faced. The correspondent began by affirming that

I would gladly support any scheme for securing an advance in the price of china and earthenware if anyone will submit one likely to secure that end. I do not associate myself with the present scheme, because I am quite sure that it can never have that end. (99)

The author's scepticism stemmed from a critique of the way in which the majority of firms in the industry set their selling prices. Depressed prices were the result, in this view, not of a competitive business structure or an increasingly competitive environment but of widespread ignorance of cost accounting.

Manufacturers, instead of going closely into the question of the cost of production, have, in scores of cases, regulated their own selling prices by the prices charged by their competitors. This is the insanity of which I complain - the insanity which has been the cause of all the evil. There is only one sound business way, only one honest way of determining the selling price of an article you make. You must base it on the cost of production, and regulate it by the laws of supply and demand. (100)

This was a clear indication that some firms would simply refuse to join any pricing agreement. Manufacturers, it was being argued, had no interests in common, neither the clustering of the industry or any sense of collective identity should have any bearing on prices determined properly by the cost of inputs and demand and supply mechanisms. The argument, displaying no 'solidarity sentiments', is an implicit rejection of the claim that the particular 'process of socialization' which takes place in an industrial district protects its 'economy as a whole against the consequences of short-term calculations of advantage' (101). The doubts of this correspondent were well founded for the alliance soon failed. In May 1899 it was noted that

Ostensibly intended to strengthen the position of manufacturing potters, and to assure them of that union which is strength, it (the Potters Alliance) has, for one result, helped to demonstrate the extreme weakness and insecurity, to use no stronger terms, of much of the great industry by which we are supported in North Staffordshire. (102)

This observation appeared in an article entitled 'The Evils of Potting With Insufficient Capital'. Clearly the failure of the Potteries to develop collaborative organizations was again being traced to the atomistic, small-scale structure of the industry.

Given more favourable conditions, particularly in terms of demand, sections of the industry did find a degree of unity. In June 1899 'Customers were astounded to receive...intimation after intimation, that in consequence of the increased cost of materials etc., prices will be increased' (103). By the close of the year manufacturers in Longton, those that did not join the Exchange and the Chamber of Commerce, were described as 'unanimous over further price rises' (104). The rises held up into the following spring and were pushed on. These developments received the support of the trade press, so often critical of small firms, the 'china manufacturers' being 'without doubt, justified in the further price rises of which they have given notice' (105). However, cohesion was not the cause of an advance in selling prices. Instead, unity emerged after the fact, and, moreover, could not be sustained as demand slackened once more. As the century closed and a new one dawned the business men of the Potteries, though they 'shared social, economic and cultural bonds, talked out their difficulties with one another....ultimately were left to struggle with them alone, preserving an autonomy they cherished and clung to' (106).

This chapter has clearly demonstrated that active co-operation was extremely difficult to achieve in the Potteries in the late nineteenth century. The fragmented structure of the industry was reflected in the fragmented and weak organizations examined here, the structural divisions of the industry mirrored in and compounded by the civic divisions of the district. As in Philadelphia 'industrial structure set limits on the organization of manufacturers interests' (107).

Analysis of the failure of the pottery industry to identify common interests, to act in unison, or to balance competition with co-operation has been rooted here in a perspective which sees industrial structure as the basic foundation of network relations. This chapter has been closely informed by the reconstruction of the growth and development of the Potteries' industrial structure carried out in chapter 2. Some of the implications of business structure for the Exchange and other institutions turned on very practical issues in the Potteries. Drawing on the reconstruction of economic networks carried out in chapter 7 it has been argued that different sized firms, often deploying different resource mixes, had developed

different strategies and different network relations. These differences made doing business on the Exchange more or less viable for different firms, and membership of the Chamber of Commerce more or less attractive. Neither body proved capable of reconciling and including these basic differences through either power or persuasion.

However, close attention to the ‘social underpinnings’ of the organizations examined here, and to those of the wider district with which they largely conflicted, has demonstrated, in Casson and Rose’s words, ‘the importance of social and political networks to inter-institutional relations’ (108). Analysis of social and cultural structures certainly extends the structural analysis of institutional failure in the Potteries. Nonetheless concentration on issues such as religious and political affiliations remains a relatively crude way of accessing the meaning and importance that actors, either individually or in groups, attached to their position in the structure and networks of the Potteries industrial district. Similarly, institutional failure cannot be ascribed simply to a culture of individualism and independence amongst the personal capitalists of the Potteries, though this undoubtedly played its part. It is clear that personal capitalism characterized the style of governance of all firms in the industry, but it is equally clear that the owners of these firms were highly differentiated in terms of their interests, values and priorities. Thus, as Scranton notes in his summary of Staber’s work, there is a need to reassess the ‘the frameworks frequently employed in discussing industrial districts....although an approach emphasising social embeddedness and trust is the most robust, it as yet lacks specification of “the content of social relations”, of mechanisms by which social structures constrain or facilitate economic action”, and of “the carriers through which social expectations exert their influence on network actors”’ (109).

NOTES AND REFERENCES

1. The literature on industrial districts is large and varied, coming from many different perspectives, historical, theoretical, and developmental. The work of Piore and Sabel (1984) is perhaps most widely cited.
2. Sentinel, February 12th, 1859, p.6. This newspaper clearly looked to the Exchange to generate greater unity within the district. Equally clearly the paper believed that such a unifying force was urgently needed.
3. Staber, 1996, p.157.
4. Staber notes that the mix of competition and co-operation characteristic of industrial district is 'not a commodity to be possessed or engineered but a conditions that reflects cultural consistency, normative backing, and conformity to agreed-upon rules.' 1996, p.169.
5. Marshall, 1911.
6. Piore & Sabel, 1984; Sabel & Zeitlin, 1985.
7. See Staber 1996.
8. Many researchers, particularly those involved in policy development, see these qualities as amenable to active promotion. Sydow, for example argues that interfirm networks may be co-ordinated 'with the help of trade associations or other collective organizations.' 1996, p.24. Staber argues that 'chambers' and associations' broad scope places them in a strategic position as overlapping foci.' 1996, p.164.
9. Staber notes that 'Saxenian argues that the political environment is an important causal factor in network development.' 1996, p.18.
10. Marshall. 1911, p.599.
11. Ibid., p.599.
12. Ibid., p.601.
13. Sydow argue that there is in fact 'a structural contradiction between diversification....and specialization.' 1996, p.39.
14. Sabel & Zeitlin, 1985, p.144.
15. Scranton, 1993.
16. Sabel & Zeitlin, 1985, p.144.
17. Ibid., p.144-7 & p.149. One way in institutions could police competition and protect an industry from market shocks was by 'overseeing complex wage stabilization systems design to eliminate wage cutting and ruinous price wars'. However, it is far from clear that the Potteries Board of Arbitration, for example, ever acheived this aim.
18. Sabel & Zeitlin, 1985, p.154.
19. Staber, 1996, p.8.
20. Scranton, 1989, p.165.
21. Marshall, 1911, p.599 & p.601.
22. Ibid., p.604.
23. Thomas, 1971, p.142-3. As with so much in the early history of the Potteries Josiah Wedgwood was at the centre of this institutional activity and he was Chairman of the Committee of 1784. The Committe of Commerce in the Potteries was perhaps predated only by those in Birmingham, Manchester, and Edinburgh., all three of which it was in communication with.
24. Ibid., p.142.

25. Burchill & Ross, 1977, p.65.
26. Keates and Fords Directory of the Staffordshire Potteries and Newcastle. 1882.
27. Burchill & Ross, 1977, p.119.
28. Staffordshire Advertiser, 17 November, 1866.
29. Staffordshire Advertiser, Paper Cuttings, Vol.4, H.B.R.L., p.142.
30. Ibid., p.142.
31. Ibid., p.142.
32. The Pottery Gazette, January, 1883, p.60.
33. The Sentinel, 22 January, 1859, p.5; 12 February 1859, p.6; 9 April, 1859, p.4; 21 May, p.4. In the same report it was noted that 'The attendance on 'Change last Monday was but a slight improvement on the two or three previous meetings. Business has scarcely recovered from the derangement of the election....Prior to the election the members, and especially many of the manufacturers, seemed to have become convinced of the importance of a more regular attendance, and to act upon such a conviction....But then came the election and the usual....excitement attending it; from that time to the present the Exchange has drooped, and many of the virtuous members before alluded to seem now to have forgotten their good resolutions'. As ever levels of attendance were actually more important than the overall membership. 6 October, 1859, p.8.
34. Ibid., p.8. Mr. F. Wragge, a committee member, added that 'he had nothing in the shape of an explanation to offer....but still he had not changed his opinion as to the importance and value of an Exchange to this district.'
35. Staffordshire Advertiser, Paper Cuttings, Vol.4, H.B.R.L., p.142. Again unification was an explicit aim, 'An enlarged and Comprehensive' Chamber was viewed as 'the means for pulling the district more together.'
36. Ibid., p.142.
37. Staffordshire Advertiser, 27 January, 1877.
38. Church, 1963, p.57; Burchill & Ross, 1977, p.125.
39. Gertler, M. & Rutherford, T., 'Regional-Industrial Networks and the Role of Labour' in Staber et al (eds.), 1996.
40. Church, R., 'Technological Change and the Hosiery Board of Conciliation and Arbitration, 1860-1884' Yorkshire Bulletin, Vol.XV, 1963, p.57.
41. Burchill & Ross, p.123; Church, 1963, p.57; Porter, J.H. 'Wage Bargaining Under Conciliation Agreements, 1860-1914' Economic History Review, Vol.23, 1970, p.460. Porter also argues that 'The formation of Boards appears to have taken place when unions had sufficient strength to convince employers that conciliation and arbitration were necessary, but insufficient power to make an openly militant policy more attractive for themselves. This point was usually reached on the upswing of the trade cycle when membership was increasing.'
41. Church, 1963, p.57.
43. In 1879 the employers principle arguments for a reduction were; i. the depressed state of the trade, ii. the increasing foreign competition, and, iii. the reduced prices at which goods were selling. These arguments clearly impressed Lord Hatherton for in explaining his award he commented that the trade 'is depressed to such an extent as to require some reduction in the cost of production....nor was it possible to increase the selling price while the trade was in its current state. I deeply regret therefore that my award must be against the workmen'. Burchill, & Ross, 1977, p.126-132; Porter, 1970, p.462.

44. Porter, 1970, p.463-4.
45. Ibid., p.463-4.
46. The Pottery Gazette, March, 1881, p.233.
47. Interestingly two very large and prestigious manufacturers, Minton and Copelands, also did not participate in the arbitration of 1879, believing that market segmentation protected them from the forces other firms were exposed to, and settled at the old rates. Burchill & Ross, 1977, p.127.
48. The Sentinel, 1 January, 1859, p.8.
49. Scranton, 1989, p.130.
50. Farnie, D.A., 'An Index of Commercial Activity: The Membership of the Manchester Royal Exchange, 1809-1948' Business History, 21, 1979, p.102-4.
51. Scranton, P., Review of Staber, U., Schaefer, N., & Sharma, B. (Eds) 'Business Networks: Prospects for Regional Development' Business History, Vol.39, No.3, 1997, p.181.
52. Staber notes that from a transaction cost perspective 'Business owners....will rely on social networks only to the extent that they minimize transaction costs'. Research has revealed evidence supporting this view, 'These studies, however, are of interfirm cooperation outside the context of industrial districts. District relations are expected to be more stable because they are embedded in a social milieu which rewards cooperation.' 1996, p.154. This study would suggest there is a limit to the extent to which clustering can induce stability.
53. The Sentinel, February 12, 1859, p.6; Staber, 1996, p.151.
54. Stuart (ed), 1985, p.123-4.
55. Ibid., p.55-6 & p.119.
56. Berghoff, H., 'Regional Variations in Provincial Business Biography: The Case of Birmingham, Bristol, & Manchester, 1870-1914' Business History, Vol.37, No.1, 1995, p.64 & p.68.
57. Caunce, S., 'Complexity, Community Structure and Competitive Advantage within the Yorkshire Woolen Industry, c.1700-1850' Business History, Vol.39, No.4, 1997; Staber, 1996, p.165.
58. Stuart (ed), 1985; The Sentinel, January 22, 1859; Paper Cuttings Vol.4, H.B.R.L., & Berghoff, 1995, p.78.
59. Ibid., p.78.
60. Ibid., p.78
61. The Pottery Gazette, December, 1880, p.1058.
62. The influence of networks of Quakers is commonly attested too, however, Berghoff notes that 'Generally, a move took place towards a fusion of local elites on the basis of wealth and social standing, regardless of religious traditions and convictions', a process that, it is argued here, occurred in the Potteries in this period. Berghoff, 1995, p.79.
63. Staber, 1996, p.10.
64. Berghoff, H. & Moller, R., 'Tired Pioneers and Dynamic Newcomers? A Comparative Essay on English and German Entrepreneurial History, 1870-1914' Economic History Review, XLVII, 2, 1990, p.266-7.
65. Ibid., p.266-7. See Hall, 1986; Whipp, 1990; Dupree, 1995. Scranton also notes the importance of an entrepreneurs origins, claiming, for example, that two large Philadelphia manufacturers, Search and Dolan, 'came to textile manufacturing not from

the shop floor....Neither had the intense and perhaps confining identification with factory life that possesses so many of their industrial colleagues'. A generalization perhaps also true of Hollins and Campbell. Scranton, 1989, p.168.

66. The Sentinel, April 9, 1859, p.4.
67. Paper Cuttings, Vol.4, H.B.R.L.
68. Keates and Fords Directory of the Staffordshire Potteries and Newcastle, 1855-6.
69. Keates and Fords Directory of the Staffordshire Potteries and Newcastle, 1882. The Pottery Gazette, January, 1883, p.60, & December, 1880, p.1058.
70. Paper Cuttings, Vol.4, H.B.R.L. The lack of precision in the figures arises because there are three members of the council it has not proved possible to trace.
71. Keates and Fords Directory of the Staffordshire Potteries and Newcastle, 1882.
72. The Sentinel, February 12, 1859, p.6.
73. Ibid., p.6.
74. The Sentinel, August 6, 1859, p.4.
75. Staber, 1996, p.160 & p.159.
76. The Sentinel, February 12, 1859, p.6.
77. Paper Cuttings, Vol.4, H.B.R.L.
78. Ibid.
79. Keates and Fords Directory of the Staffordshire Potteries and Newcastle, 1882, p.75-6.
80. The Sentinel, February 12 1859, p.6.
81. The Pottery Gazette, December 1891, p.1126, & October, 1898. It was recognised by contemporaries that the industry's small-scale structure was becoming more pronounced, it was observed, for example, that 'many small firms have started into existence....The proprietors in these cases have no more hands than they can look after themselves, and being content with little more than workmens wages, they have undersold the older and larger firms.' The Pottery Gazette, March, 1888, p.227.
82. The Pottery Gazette, February, 1896, p.134.
83. Scranton, 1989, p.73.
84. The Sentinel, January 22, 1859, p.5.
85. The Sentinel, February 12, 1859, p.6 & January 22, 1859, p.5.
86. Staber argues that some economists, particularly those working in a transaction cost framework such as Williamson, see interfirm networks as 'a governance alternative to both open markets and internal organizational hierarchies. They view networks as an efficient mechanisms for coordinating strategic action across firms.' 1996, p.2.
87. The Sentinel, January 22, 1859, p.5; Berghoff, 1995, p.64.
88. Farnie, 1979a, p.97 & 1979b, p.192.
89. Farnie, 1979a, p.99-100 & 1979b, p.294.
90. Paper Cuttings, Vol.4 H.B.R.L.
91. The Sentinel, April 9, 1859, p.4.
92. The Pottery Gazette, February, 1888, p.152.
93. The Pottery Gazette, May, 1884, p.536.
94. The Pottery Gazette, August, 1891, p.724.
95. The Pottery Gazette, July, 1898, p.827 'Manufacturers Selling Prices'. The Gazette added, almost as a threat, that 'Firms of larger capital, and some of them long-standing, have been seriously contemplating realising their capital, and volutarily leaving the trade in which they were not making any money.'

96. Ibid., p.827.
97. Scranton notes that in Philadelphia too the promoters of association had constantly to 'repeat these frustrating exercises, attempting to convince their brethren that unity would bring greater control over their fates.' 1989, p.130.
98. The Pottery Gazette, August, 1888, p.953 'Prices of Earthenware'
99. The Pottery Gazette, February, 1899, p.81 'Correspondence: Proposed Alliance in the Earthenware Trade.'
100. Ibid., p.81. The anonymous writer reminded his readers, for good measure, 'Let us not forget that the public are not unimportant factors in this question. they are not unlikely to resent this combination against their interests and it is in their power to give a very practical shape to their resentment.'
101. Sabel & Zeitlin, 1985, p.154.
710. The Pottery Gazette, May, 1899 'The Evils of Potting With Insufficient Capital'.
103. The Pottery Gazette, July, 1899, p.671 'The Advance in Prices'.
104. The Pottery Gazette, November, 1899, p.1277.
105. The Pottery Gazette, March, 1900, p.291 'The Advance in Prices'.
106. Scranton, 1989, p.131.
107. Ibid., p.60. Because the issue is so complex this study does not examine the fierce battles which took place in the Potteries in the late nineteenth and early twentieth centuries over the form of Local Government that the district should adopt, in which many potters were leading protagonists. These disputes resulted in 1908 in the forging of a unique federated civic structure designed to acknowledge the autonomy of each township. Though this issue did not impact directly on industrial matters it is indicative of the internal divisions of what appears, to outsiders at least, to a particularly homogenous place.
108. Casson, M. and Rose, M.B., 'Institutions and Evolution of Modern Business: Introduction' Business History, Vol.39, No.4, 1997, p.6.
109. Scranton, 1997, p.130.

9: CONCLUSION

This study has added significantly to our knowledge and understanding of the North Staffordshire pottery industry in the second half of the nineteenth century, whilst also raising further issues and questions. As Weatherill notes the Potteries have perhaps 'figured disproportionately large in the literature' on the Industrial Revolution in the eighteenth century (1). However, the later growth and development of the industry has been largely neglected by business historians. Studies of the district and industry in the nineteenth century have come mainly from labour and social historians (2). This neglect is hard to understand. The industry was, and remained throughout this period, internationally dominant, in terms of both volume and reputation. Control of domestic markets was matched by a strong export focus and performance. In the last quarter of the nineteenth century the value of British ceramic exports was consistently close to or above £2,000,000 p.a. None of the materials used in pottery manufacture were imported from abroad, increasing the earning power of this export trade. Growth in ceramic exports in this period matched that seen in leading sectors such as cotton. In 1875 C.B. Adderley, President of the Board of Trade, described pottery as 'one of the most important of industries'. One estimate of 1883 concluded that over 50,000 found direct employment in the industry, fully one third of a total population that made the urban conurbation of Stoke-on-Trent larger than those of Blackburn, Bolton, Halifax, or Huddersfield. It was also estimated in 1883 that fixed capital investment in the industry was more than £10,000,000 (3).

One of the tasks faced by this study has then been to establish the basic pattern of growth and development shown by the industry in the second-half of the nineteenth century. Central to that task was the detailed reconstruction of the structure of the industry from 1860-1890 carried out in chapter 2. The total population of firms grew consistently and the industry was dominated in numerical terms by small and medium-sized firms. This reconstruction has established not only the degree of growth shown by the industry but has also provided insights into the mechanisms whereby that growth occurred. Entry at a small or medium size and then growth from that point was primarily responsible for the growth of the industry. a

pattern congruent with Marshall's trees of the forest analogy. All of the very large firms active in the industry in this period had grown from more humble beginnings, often over many decades. Indeed, a small but very highly regarded group of large firms, such as Wedgwoods, Mintons, and Ridgways, could trace their origins to the Industrial Revolution of the late eighteenth and early nineteenth centuries and remained in the hands of the founding families. These firms traded on family name, wide product ranges and deserved reputations for quality of workmanship, materials, and design. However, these firms were joined in the second-half of the nineteenth century by an increasing number of younger and rapidly growing large firms, which, whilst still concerned about their reputation, were more oriented towards larger volumes and more advanced production processes. The most prominent amongst this category of firms, including J. & G. Meakins and Johnson Bros., based their growth on the export of cheap and mid-range tableware, particularly to the valuable markets of North America. Both ease of entry and the survival and growth of firms was related to low capital requirements, the result of the industry's relative technological backwardness, and adequate, often local and informal sources of both fixed and working capital. However, the survival and growth of some firms should not obscure the high exit rate seen throughout the period. Firms from every size category lived under the threat of failure. The structure of the industry was also related to styles of governance and it was shown that personal capitalism characterized firms throughout the industry. The retention of personal capitalism was probably both supported by and itself a factor in the evolution of the industry's small-scale structure.

The reconstruction of the business structure of the district has provided the basic framework within which a wide range of other issues can be explored. Thus, it has been shown that considerable growth in the size of the industry was accompanied by decline in average firm size and in industrial concentration, trends that have informed discussion of issues such as marketing and resource responses, patterns of integration, and collaborative schemes. Declining average firm size and industrial concentration clearly heightened the already competitive nature of the industry, and, because both trends resulted from ease of entry into the industry, also played a role in generating the high levels of uncertainty displayed by many in the industry in this period. Uncertainty has in turn been shown to have

impacted on the formulation of strategies, perhaps most obviously in the area of resource responses and mechanization in particular. It has been shown that the process of mechanization in the pottery industry was both late to start and then very prolonged. Skilled workers remained central to resources bases of all firms. This pattern of resource development and utilization was related in part to technological difficulties but also to structural factors, for instance to the uncertainty induced by falling concentration, to the rich human resource endowment of the district, and to the business culture of both firms and the industry as a whole. These cultures often perceived mechanization as a threat to the traditions and practices which had brought success to the industry in the past.

Manufacturer's doubts about the impact of mechanization led them to compromise with workers over the introduction of new machines and techniques, limiting the cost reductions to be made through mechanization. These limitations fed back into and reinforced the gradual progress of mechanization. Strategy formulation did not turn simply on the kind of focusing and inducement effects identified by Moss, powerful though these undoubtedly were.

A similar range of factors influenced the marketing strategies of firms, which characteristically focused on the quality of wares and the cachet attached both to the names of individual firms and to 'Made in Staffordshire'. Marketing strategies again evolved only gradually in this period. Extensive forward integration into marketing and distribution was very rare. The majority of firms, probably all small firms, relied upon visiting buyers to secure orders. However, some firms did begin to develop agency networks. Increasing attention was paid to the development of new markets, particularly Colonial and Imperial, in this period but it has been shown that the so-called hard markets of Europe and elsewhere were not abandoned by potters seeking easier sales elsewhere. Imperial markets remained secondary to traditional markets in North America and the Continent and to new non-Imperial markets, particularly in South America. Similarly, as is also true in the area of resource responses, it has proved possible to identify firms finding success through the formulation of innovative marketing strategies. However, with the exception of the very largest and most prestigious firms such as Mintons, most firms, because of the costs involved and because of the time pressures resulting from the seasonal nature of the trade,

were not innovative in terms of design strategies and resources and mistrusted the vagaries of fashion.

The case study of Minton's Ltd. presented in chapter 5 allowed a number of these issues and factors to be explored in much greater detail. Minton's have received attention from historians in the past, but most of this has been antiquarian in nature, concentrating on design and attribution. However, it has been shown here that even the reputation enjoyed by Minton's would not by itself protect a firm from the impact of new sources of competition. Minton's struggled throughout the 1880s and came very close to failure in the early 1890s. These difficulties were clearly related to the firm's high costs, derived from a product-market orientation that was supported throughout the period by a very strong and unwavering company culture. However, though neither strategy or governance were changed, the firm survived and returned to profitability, suggesting that company culture and personal capitalism could be sources of considerable strength.

However, in considering these issues the importance of change in the external environment has not been neglected. Change in the external environment was explored in chapter 3 in order to further contextualize analysis of business strategy. This chapter also established the broad patterns seen in the value and volume of British ceramic exports in the late nineteenth century. The rise of foreign industries, particularly in the US and in Germany, Belgium, and France, and the imposition of high tariffs in important markets, France and the US for example, made the external environment in which Pottery firms operated increasingly hostile. Exports to important markets fell and the domestic market was penetrated by continental manufacturers. By the close of the century Britain's balance of trade in ceramics with countries such as Germany was negative. It was argued in chapters 4 and 6 that foreign manufacturers, particularly those on the continent, used more advanced production and marketing strategies than were typical in the Pottery, and were oriented more towards making in volume and selling on price, rather than making in batches and selling on quality. Furthermore, selling prices experienced sustained downward pressure for more than two decades from the mid-1870s onwards. A strong sense of crisis was perceived by many in the industry and attention was devoted both to the cause of this crisis and to its solution. It has

proved possible to find examples of complacency amongst some manufacturers, and to demonstrate that others felt that the industry's problems were located elsewhere, but increasingly the attention of many was focused on the structure of the industry, and in particular on the seemingly ever growing number of very small manufacturers. Small manufacturers, many of them undoubtedly occupying an insecure and marginal position, were blamed for a range of ills; from lowering prices to lowering standards, causing the immiseration of workers and making the capital of others 'unremunerative'. The negative impact of small firms on the industry as a whole was ascribed largely to their financial weakness, which left them vulnerable to pressure from 'ready money' or 'cutting' buyer to reduce prices, but there was also a growing recognition that the industry was subject to general over-production and excess capacity.

Adapting to this rapidly changing external environment proved difficult, and one of this study's most consistent findings has been of only very gradual change in the structure and strategies of firms in the Potteries. It has also been consistently argued that some of the causes of that pattern of development are to be found not in individual firms but in the industry as a whole and the relationships between firms in the district. These arguments have appeared throughout the work but were focused upon in chapters 7 and 8. Chapter 7, which began an exploration of the institutional environment of the Potteries by establishing the patterns of integration displayed by the industry, enabled some of these issues to be addressed. It was shown that firms turned to increasingly contingent strategies in order to deal with the twin pressures placed on them by falling prices and an increasingly unpredictable demand structure with their existing structures and resources. Some large firms had begun to move towards greater integration in the 1870s, particularly of material sourcing and processing, but were forced by external change into adaptive strategies of diversification in the 1880s. This chapter also presented a second detailed firm case study, of Jesse Shirley and Sons, again allowing specific issues to be focused on and adding to the empirical richness of the study. Further insights into the institutional environment in which firms operated in the Potteries were gained in chapter 8. The sense of an increasingly hard-pressed and fragmenting industry was reinforced in particular by the previously untold story of the North Staffordshire Exchange. The concept of business culture has been used to

inform discussion of a range of issues and problems throughout the study, but the examples of the Exchange, and of the Chambers of Commerce and the Potteries Board of Arbitration, both of which have previously only been discussed in relation to labour issues, allowed the notion of an industry or district wide business culture to be both deepened and complicated. The industry's fragmented or atomized structure was accompanied by a fragmented or atomized business culture which often left businessmen feeling isolated from, or even antagonistic towards, their fellow pottery manufacturers.

A range of comparata have been used in order to contextualize findings from the Potteries. These comparata have included the boot and shoe trade of Northampton, the cutlery trade in Sheffield, and the Philadelphia textile trades. The most useful comparata were those in which strong elements of both spatial clustering and industrial atomization can be discerned. Clearly these could be important factors in the growth and development of an industry. Can the example of the Potteries add then to the concept or model of the industrial district? Perhaps most important in relation to this question is an assessment of the links between business culture, business structure, and spatial clustering in the case of the pottery industry. However, as Harrison argues, the 'reality' of industrial districts is not able to support a simple linear model which runs from 'proximity to experience to trust to collaboration to enhanced regional economic growth' (4). Defining and assessing the structural, cultural, and developmental aspects of spatial clustering is far from straightforward and, as has been stressed, the Potteries industrial district, both collectively and in its constituent parts, possessed strengths and weaknesses. Nonetheless, conclusions concerning the series of linkages posited above are possible.

Firstly, and most importantly, spatial clustering (sometimes referred to as proximity or co-location) played a central role in the growth and development of the structure of the North Staffordshire pottery industry in the second half of the nineteenth century. A history of spatial clustering had, by the mid-century, created in the region factor conditions and institutional infrastructures which supported a fragmented structure of many competing, small and medium-sized firms (5). Those same conditions also allowed for the intensification of that structure in the period under study and sustained personal capitalism as the

characteristic organizational structure of firms. The relevant factor conditions were, in simple terms, 'thick' supplies of physical and human resources. These resources had distinctive qualities, important in strategic as well as structural terms, but for the moment their generalized nature in the district is their most salient characteristic. Important institutional infrastructures included networks supplying start-up and investment capital, networks of credit once in business, and networks of suppliers, buyers, and agents facilitating flows of information, materials, and other commodities. All of these networks were highly localized and largely independent of national frameworks. The majority of these networks were also based in transactions, and proximity not only enhanced their rapidity, lowering transaction costs, but also fostered interpersonal relations likely to improve their reliability by establishing a basis in trust. Flows of information and transactions between firms and businessmen within the district were also strengthened by a range of shared and tacit understandings. To take a simple example, the depth of knowledge, largely rule-of-thumb based, possessed by most participants in the industry obviated the need for complex and expensive contractual arrangements in buyer-supplier relations. These factor conditions and institutional arrangements had three principal effects on the industry in terms of its structure. They made the industry very easy to enter, they ensured a ready supply of willing new entrants, and they aided the survival and growth of a proportion of those entrants.

Spatial clustering also played a strong role in the strategies of firms; for example the networks of buyer-supplier relations examined in chapter 7 depended on proximity not only for its efficiency but also for its very possibility (6). However, these strategies also depended on the resources, particularly the human resources, which had been generated by prolonged spatial clustering. Flexibility was necessarily located both between and within firms. As Gertler and Rutherford argue 'the successful implementation of external network relations (depends) upon the successful implementation of network principles inside participating firms' (7). The historic localization of the industry in North Staffordshire meant that both entrepreneurs and workers were embedded in a distinctive social 'milieu' with strong 'spontaneous and emergent qualities' (8). The generations of skilled workers produced by clustering had led to a semi-autonomous role for labour in relation to issues such as

recruitment, training, discipline, and some aspects of production, its pace for example. Relations between managers and employees were not starkly hierarchical, and recent research suggests that empowered workers are significant in the battle to improve quality, reduce defect rates, guarantee the flow of production, and enhance the customization of products to niche markets (9). As chapters 5 and 6 demonstrated, these were essentially the qualities on which firms in North Staffordshire sought to compete in both domestic and international markets. One outcome of the 'empowerment' of workers in the Potteries was evident in the negotiated path towards mechanization explored in chapter 4.

Some of these conclusions suggest that understanding of the pottery industry can be facilitated by the industrial district model; which suggests that the clustering of an industry may deliver to firms on a range of 'strategic promises', unlocking inter-firm synergies and encouraging innovativeness, risk-taking, and rapid learning and adjustment to new conditions. However, many of these benefits have proved hard to identify empirically in the Potteries in the late nineteenth century. Three interlocking issues seem central in addressing why this may have been so. They are, firstly, the precise nature and basis of inter-firm relations. Did these create external economies of scale? Did they encourage innovation by spreading risks? Secondly, the actual nature of the flexible resource deployment typical of the industry, and, thirdly, the extent to which the industry was effectively 'social embedded', as expressed in the business culture of the district as a whole.

Most important perhaps are inter-firm links and relations, and in particular the extent of vertical interdependency. Co-operation is seen as the primary source of innovation in industrial districts, and as Staber argues dependencies

within a network are experienced as interdependencies. Interdependence of some kind is an inevitable part of co-operation. Without some degree of interdependence with respect to information, location, resourcing acquisition, and the like, there would be no incentive to assume risks or to explore possibilities for cooperation. (10)

The North Staffordshire Exchange and the Chamber of Commerce may be viewed as attempts to increase interdependency within the industry, or at least to heighten awareness of those interdependencies which already existed. However, though the industry was populated by very many firms, the division of the industry by firm was overwhelmingly horizontal rather than vertical. Market segmentation could only do so much in ameliorating the intense competition that inevitably created ensued. Vertical specialization by firm generally occurred only at the very start and finish of the production-distribution chain, that is in raw material supply and processing and in distribution and exchange. The industry was largely made up of competing rather than co-operating firms. Technology and culture, which impacted for example in the tendency to keep body recipes secret, did not encourage firms to 'build highly specialized competencies, while accepting the dependencies that are associated with specialization' (11).

Where specialization occurred at other points in the production process, in design and decorating for example, it was limited in scope and the ancillary firms involved typically small, in a marginal position and under-resourced. Moreover, where vertical specialisation was the norm, for example in the supply of inputs explored here through the case of Jesse Shirley and Sons, the scope for either product or process innovation on the basis of buyer-supplier collaboration was limited. Manufactures required from Shirleys and firms like it a limited range of highly standardized raw materials. Buyer-supplier relations in this instance did not preclude but also did not depend upon or necessarily generate high levels of either trust or stability, and firms freely, and increasingly, used 'exit' rather than 'voice' in their relationship with Shirleys (12). Moreover, these changes in inter-firm relations were coincident with structural change in the industry, in particular with increased atomization and declining firm size, itself linked to spatial clustering (13).

Potentially the most significant form of specialization by firm in the pottery industry occurred in the manufacture of pottery-making machinery, a development signalled by the emergence of a small group of potters' engineers from the 1870s onwards. However, the factor conditions produced by clustering (particularly abundant physical resources) and slow growing demand amongst manufacturers, fuelled by ambivalent attitudes to mechanization,

ensured that this was one area of specialization in which a highly competitive structure did not emerge. The structure of the machine-making industry in the Potteries may be said to have been oligopolistic. Porter claims that the conditions for co-operation, innovation, and 'competitive advantage are most fertile' when 'the exchange and flow of information about the needs, techniques and technology among buyers, suppliers and related industries.... occurs at the same time that active rivalry is maintained in each separate industry', but this combination of conditions did not emerge with any great force in the relationship between manufacturers and potters' engineers (14).

The low innovative potential of the Potteries industrial district is also demonstrated by the growth and development of new sectors at this time that were reliant on R & D intensive product and process innovation. Of the four new sectors which began to emerge during this period, tiles, sanitary ware, electrical ware, and industrial ceramics, only tiles, the least R & D intensive, showed a marked locational bias towards the Potteries. The other sectors were not only more research and capital intensive, but they were also much less dependent on the traditional skill of both worker and manager. Their manufacture employed more machinery and more science, rather than rule-of-thumb knowledge. The location of many, though not all, of the firms involved in these new sectors outside North Staffordshire suggests that the benefits to be derived from integration into the networks of the Potteries were less significant in these sectors than in the more traditional and much larger tableware sector (15).

The innovative capacity of the district was further dampened by the free and cheap circulation of second-hand plant. This aspect of the district, made highly efficient by spatial clustering, had three effects. It encouraged small, new entrants, it reduced demand for new plant, and it led to sub-optimal efficiency in many firms (16). The concept of 'redundancy', an outcome of the 'thickness' of industrial districts, is posited as an important source of flexibility alongside interdependency. Redundancy as a positive attribute of clustered industries, also sometimes characterised as 'slack', has largely been explored in terms of institutional infrastructures and arrangements, giving an industry as a whole the ability to survive and learn from the mistakes and failure of individual firms and entrepreneurs.

Scranton, however, extends the concept of beneficial redundancy to factor conditions, arguing that the 'broad vitality' of the Philadelphia textile region lay in large measure in a process whereby

Failed firms leave behind substantially devalued plant and equipment for others to activate, mill space is readily occupied and old machines may be so cheaply bought as to be profitably operable or sufficiently adaptable to be modified to for new purposes that eluded their former owners. So long as this sequence is viable a species of non-kin succession recurs; collapses may open the way for for new starts as much as successes offer examples for them to emulate. (17)

However, the suggestion that in order to be deployed profitably this plant had to be substantially devalued and very cheap is indicative of the highly marginal position of the majority of start-up firms thus equipped and encouraged. This cycle of collapse and entry certainly occurred in the Potteries and the firms it created, often also financially insecure, tended, on the basis of their inefficient but cheap resources, to compete on price, driving down prices industry-wide (18). In the process they also threatened the reputation of the district by cutting costs and making lower standard products. Staber claims that 'Redundant network structure....makes the system "error friendly"', but the Potteries appears to have been too error friendly (19). Inefficiency and unprofitability may have been punished in individual cases but was not eliminated from the system as a whole in the process. Moreover, the same cycle of failure and restarts led not only to individual firms too weak to resist pressure to lower their prices but also to systemic excess capacity and over production. Farnie observed a very similar effect on the cotton industry in the early nineteenth century

The ranks of the employers were swelled during each successive phase of expansion by a new influx of recruits with limited means and were then decimated during the subsequent depression, so creating a market in second hand machinery , facilitating entry by new aspirants and exposing the trade to repeated bouts of over-production and underselling. (20)

If the Potteries may be viewed as too error friendly then it may also be argued that the district was too adaptive. The flexibility of the industry was largely short-term and tactical rather than long-term and strategic, a conclusion seen in other recent studies, where 'Dense....network structures' have suppressed innovation by becoming a 'force for defending old ways. Significantly, the propensity of dense and long-standing networks to reduce industry responsiveness and adaptability has, in many cases only been exposed by change in the competitive environment, as was certainly true both of the Potteries as a whole and of individual firms such as Mintons (21).

Inter-firm networks and interdependence are meant not only to encourage innovation but also to 'discourage opportunism', but many firms in the Potteries did, on occasion, behave opportunistically (22). They gave hidden discounts for cash, copied competitors designs at the request of buyers, reduced their profit margins to the bone in order not to lose orders to local competitors, and refused to co-operate a wide range of issues. This behaviour, and its increase in line with falling average firm size and industrial concentration, brought to the fore and made contentious the issue of industry structure, giving rise to a coded language of legitimacy and fairness in a trade press which throughout the last two decades of the century argued that the industry was competing itself into the ground. The North Staffordshire pottery industry did not recognise that it shared 'an indissoluble mutual destiny' (23).

The role of foreign competition in inducing high levels of uncertainty cannot be ignored in any attempt to address this issue. As has been noted, a number of studies have demonstrated the influence of new sources of competition in exposing the underlying rigidities of old industrial districts. Marshall too acknowledged this effect

Thus....even a little obstinacy or inertia may ruin an old home of industry whose conditions are changing; and....the opening out of new sources of supply or new markets for sale may quickly overbear the strength which old districts have inherited from past conditions (24)

Case studies of firms, such as that of Mintons presented here, also reveal how highly independence and autonomy could be valued in the business culture of personal capitalism. However, these approaches, which focus either on external forces or on the individual firm, do not provide a full answer. Low levels of trust and co-operation, and intense competition were as much properties of the system as a whole as they were the result of the behaviour or attitudes of individual firms and businessmen.

Staber identifies 'social embeddedness as the key to what would normally be considered a contradictory combination of competition and co-operation' (25). Thus, the imbalance between competition and co-operation in the Potteries may be traced to a failure of social embeddedness. This argument creates a dilemma however, for the pottery industry appeared to be very deeply embedded in every aspect of the social fabric of Stoke-on-Trent. It is argued here that the intense, historical clustering of the industry had been accompanied by the emergence of conflicting values and cultures within the business community of the Potteries. Social embeddedness did not produce homogeneity and, in effect, there was little agreement surrounding the issue of what it meant to be a 'true potter', an issue vital to all local people and at the heart of the business culture of workers, individual firms, and the industry as a whole (26).

Again, many of the roots of these issues lay ultimately in structural factors, but were often articulated in social and/or cultural terms. Structural developments impacted on the ability of the Potteries to generate a 'distinctive collective identity' at two levels; one direct and immediate, the second less transparent and more long-term (27). Firstly, new entrants, though likely to be deeply imbued with potting skills and lore, needed to be integrated into the business community. This was not easy for many operatives turned entrepreneur and required time, the skills needed were different, as was the position they now occupied in the society of the district. Many of them did not have the time needed. As Staber notes 'if entry and exit are uncontrolled, (networks)... are fluid and impossible to maintain' (28). Thus, many firms in the industry, especially but not only small firms, looked to their own interests, acted in opportunist ways, and did not recognize a unified notion of the 'trade', simply because of the day-to-day pressures placed on them by an intensely competitive environment

and their own insecurity. As Scranton found in Philadelphia co-operation foundered on 'standard economic blockages' and the 'perennial economic risks that menaced individual' firms (29). However, Scranton also argues that this lack of cohesion was driven by cultural as well as economic imperatives.

In the Potteries such cultural imperatives derived much of their force from a powerful combination of history and what Scott and Storper have called 'the politics of place' (30). Notions of continuity, inheritance, and custodianship were, and still are, very powerful in the Potteries. Thus, the industry was reminded that

In a complicated and skilled industry like that of pottery we inherit a great deal from our ancestors. Not without much thought, time and labour has the necessary knowledge and skill been acquired, either on the part of the master or the executive potter. (31)

It was felt that 'Cheapness of production may be bought too dearly' if it led to these legacies being forgotten or abandoned. Readers of The Pottery Gazette were told 'he would be but a half hearted potter who did not reflect upon the centenary of Josiah Wedgwood how much his craft owes to the perseverance and genius of that great man' (32). It is significant, and entirely typical, that the debt modern potters owed to Wedgwood was framed in terms of craft rather than commerce. Elsewhere, Wedgwood, who more than any man was responsible for the industrialization of the pottery trade, was praised for having converted 'a rude manufacture into a fine art' (33). Just as it was argued that there were legitimate and illegitimate, fair and 'unwholesome', forms of competition, so it was also argued that there were 'real' potters and pretenders more interested in cash than in craft. The difficulty, and the source of much conflict within the business community of the district, lay in deciding who were the real or true potters. Who most faithfully represented 'the Potteries'? These questions became both more pronounced and harder to answer in the late nineteenth century because change, however haltingly, was undoubtedly occurring in the structure of individual firms, in the industry as a whole, and in technology. Thus, it was recognised, grudgingly sometimes, that

The tendency of the modern pottery manufacture is towards the more and more complete employment of mechanical devices to facilitate the production of and lower the price of various goods. The true potter will always be an artist, but the manufacturer, who caters for the greater number of people rather than the artistic few, will ever be driven to bow to the god of cheapness. (34)

However, change acted primarily as a catalyst in the emergence of these tensions, rather than as their cause. Can these tensions and conflicts be usefully modelled? Intense clustering over a long period of time, North Staffordshire had begun to emerge as a centre of pottery manufacture by the mid-seventeenth century, and relative geographical, political, cultural, and even demographic, isolation, had led to the formation in the Potteries of what Massey calls 'deeply essentialist and internalist' views of 'place and its character'. In such views people, sometimes individually but especially in groups, claim places for themselves, claim that they represent the essence of a place. However, what such views fail to recognize is that places 'are hybrid', the location of 'a multiplicity of readings' (35). Moreover, the 'claims and counter-claims about the present character of a place depend in almost all cases on particular, rival, interpretations of its past', interpretations which are used to 'legitimate a particular understanding of the present, (and) are to put to use in a battle over what is to come' (36). As this work has shown there was much uncertainty over many aspects of the future in the Potteries in the late nineteenth century, strengthening the need for legitimization of particular views and strategies.

Using the understanding of place developed by Massey it is possible to see some of the rival claims within the business community in the Potteries, and to map some of the conflicts on which attempts to achieve a balance between competition and co-operation foundered in the late nineteenth century. Was the Potteries a place of art or industry, of craft or mechanical manufacture, of independent men or giant concerns, of fresh opportunities or established interests? All these questions were vigorously debated by contemporaries, and polarized around the structural and strategic tensions existing between large and small firms. These

divisions were clearly related to spatial clustering, and increasingly they placed limits on the extent of 'cultural consistency, normative backing, and conformity to agreed-upon-rules', from which it is argued the balance of competition and co-operation emerges in the 'ideal-typical industrial district' (37).

The issues of place and representativeness of place may be thought of as part of the content of social relations in the Potteries, the reconstruction of which, so Staber argues, helps us to explore business behaviour. If, as Lipartito argues, the concept of business culture can articulate the behaviour of firms and entrepreneurs at a deep, non-functional level, then the concept of social embeddedness may help to articulate the district as a whole at a similar non-functional level. However, the same, if not even greater, caution is required here as when utilizing the concept of business culture. Exploration of social embeddedness and its impact on business behaviour should only proceed on the basis of a careful reconstruction of business structure, carried out here in chapter 2, and of inter-firm and transactional relations, begun here in chapter 7.

Thus, by integrating structural and cultural analyses, and by relating both to spatial clustering, it becomes possible to explore the points of difference between the historical example of the Potteries and the conventional, theoretical model. The concept of the industrial district remains a useful analytical tool, if only because, as in the case of the Potteries, it can help to structure our enquiry when 'divergence' occurs. This approach shifts emphasis away from issues of technology and production per se, Piore and Sabel place much emphasis on the use of multi-purpose tools for example, to the networks and institutions in which they are embedded and deployed as determinants of a district's growth and development, and downgrades the model's predictive powers. These conclusions are also congruent with Casson and Rose's conclusion that 'Understanding of the development and success of networks clearly....requires an understanding of the way in which both power and trust relationships develop and the impact which they have upon business behaviour' (37).

However, in reassessing the industrial district model in the light of findings from the Potteries, it must be remembered that routine co-operation did exist alongside the conflicts

and tensions crystallized in the failure of the Exchange and Chamber of Commerce. These relations, though not necessarily very dynamic or leading to high levels of innovation, were nonetheless central to the day-to-day functioning of the North Staffordshire pottery industry. The Potteries also, as is predicted for the 'ideal-typical' industrial district, produced rich supplies of highly skilled workers and many keen, sometimes able entrepreneurs. Given these human resources the continued reliance on skill and quality as the basis of production and marketing strategies remained logical and effective in many markets, so long as consumer preferences in ceramics were unresolved. Thus, the example of the Potteries confirms many aspects of the conventional model of the industrial district.

However, despite the empirical findings of this study, there remains much that is not known about the modern business history of the North Staffordshire pottery industry, and to extend study of the process of change in the Potteries, and in particular of the evolution of the district's networks, into the twentieth century would undoubtedly provide a rich and rewarding challenge.

NOTES AND REFERENCES.

1. Weatherill, 1971, p.xiii.
2. Whipp, 1990; Dupree, 1996.
3. The Pottery Gazette, May, 1883, p.451-2.
4. Staber, 1996, p.172 quoting Harrison, B. 'Industrial Districts: Old Wine in New Bottles?' Regional Studies, 26, 1992.
5. The twin forces of factor conditions and institutional infrastructure are stressed in Doeringer, P. & Terkla, D. 'Why Do Industries Cluster?' in Staber et al (eds.), 1996.
6. Gertler, M. & Rutherford, T. 'Regional-Industrial Networks and the Role of Labour' in Staber et al (eds.), 1996, p.43.
7. Ibid., p.45.
8. Staber, 1996b, p.174.
9. Gertler & Rutherford, 1996, p.46. The notion of empowerment requires some qualification. Pottery workers were not, collectively, particularly empowered. A strong attachment to craft unionism often left them in a weak position in annual negotiations and pay disputes, as was demonstrated in the examination of the Potteries Board of Arbitration presented in chapter 8. However, many workers, particularly the more highly skilled, were individually empowered in the workplace and in the regulation of their work on a day-to-day basis. This position, and the complexity and ambiguity of systems of authority within the workplace did not, however, eliminate industrial conflict from the industry.
10. Staber, 1996, p.16.
11. Staber, 1996b, p.151.
12. Sydow refers specifically to a preference for 'voice' over 'exit' as characteristic of the networks found in industrial districts. In comparison to markets a 'network has more structure, produces more interaction among the network organizations, provides "thicker" information channels, demands loyalty, exhibits more trust, prefers voice to exit, and puts less emphasis on prices.' Sydow, J., 'Flexible Specialization in Regional Networks' in Staber et al (eds.), 1996, p.25.
13. The blending of a wide range of processed materials to form the 'body' from which wares are fashioned always took place within the firm, largely for the very reason of *not* sharing discoveries, and was typically reliant on rule-of-thumb skills rather than controlled experimentation. As late as 1974 Gay & Smythe observed that although 'it would be possible for manufacturers to purchase a few standardized bodies from specialist body makers' this was only a 'possible development for the industry in the years ahead' Gay & Smythe, 1974, p.44.
14. Porter, 1990, p.10.
15. Gay & Smythe found that 'sanitary-ware, tiles and electrical porcelain...concentrated in North Staffordshire to a lesser extent than the manufacture of domestic ware', a conclusion supported by the employment figures they present, summarised below

Percentage of Total British Ceramic Workforce Located in North Staffordshire, by Sector.

Sector	%
Domestic	94
Tiles	68
Electrical	62
Sanitary	44

Source: Gay & Smythe, 1974, p.16.

16. The Pottery Gazette, December, 1885, p.1422. Noting that 'Whilst some of the very best houses have been phenomenally slack, the small producers have from one end of the Potteries to the other, have been able to keep their ovens going regularly'. The journal argued that 'These small makers have a decided advantage over the larger producers. Their expenditure, in comparison is so much less, and as a rule the labour they employ is cheaper, if less efficient.'
17. Scranton, 1989, p.165.
18. The Pottery Gazette argued in January 1886 that low prices resulted from the actions of small firms, concluding that 'All this is very detrimental to the best interests of the trade....depraving the taste of manufacturers, dealers and consumers alike', p.43. In August 1886 the journal described 'these little factories (as) so many nails in the coffin of good trade', p.948.
19. Staber, 1996, p.19.
20. Farnie, 1979, p.210.
21. Staber, 1996, p.167.
22. Ibid., p.151.
23. The Sentinel, February 12, 1859, p.6.
24. Marshall, 1911, p.287.
25. Staber, 1996, p.151.
26. The Pottery Gazette, July, 1894, p.575. It is contended here that this and other related issues formed for the Potteries a central part of what Staber calls the 'content of social relations.' 1996, p.157.
27. Staber, 1996, p.158.
28. Ibid., 1996, p.14 & p.170.
29. Scranton, 1989, p.159 & p.167.
30. Staber, 1996, p.10. Staber is quoting from Scott, A. & Storper, M., 'Regional Development Reconsidered' in Ernste, H. & Meier, V. (eds.), Regional Development and Contemporary Industrial Development, 1992, p.19.
31. The Pottery Gazette, December, 1889, p.814. Similarly, considering the industry's prospects in foreign markets, the journal concluded that 'There is little...to hope for from outside help, and the more we think about the matter the more we are reminded of the actions of the pioneers of British commerce. It is (due) to those hardy sons of toil that our industries have gained their pre-eminence....Shades of our fathers, were

- they to arise, we can imagine them pointing to the past and the methods they pursued in laying the foundation our industries.' *The Pottery Gazette*, January, 1894, p.31.
32. *The Pottery Gazette*, December, 1889, p.814 & December 1895, p.5.
 33. *Ibid.*, p.5
 34. *The Pottery Gazette*, July, 1894, p.575.
 35. Massey, 1995, p.183 & p.185. Staber argues that the 'evolutionary path of a particular networkis affected by the interplay of these two forces: spatial relations and interorganizationl control structures.' 1996, p.12.
 36. Massey, 1995, p.185.
 37. Staber, 1996, p.169.
 38. Casson, & Rose, 1997, p.3.

APPENDICES

Appendix A: Data Relating to the Structure of the North Staffordshire Pottery Industry, 1860-1900

Table 1: Grouping of Firms by RV, Hanley 1882.

RV (£)	No. of Firms
1-50	21
51-100	12
101-150	8
151-200	4
201-250	6
251-300	2
301-350	3
351-400	1
401-450	1
451-500	-
501-550	1
551-600	-
601-650	-
651-700	1
701-750	-
751-800	-
801-850	-
851-900	1
901-950	-
951-1,000	-
1,001+	5

Source: Hanley Borough Rate Book, 1882.

Notes: There is a clear cut off at RV £150. With one exception all sub-ranges between RV £151-500 attain at most one half of the lowest value of the sub-ranges between RV £1-150. Any clustering between RV £501-1,000 is clearly weak due to the small number of firms involved but those firms with an RV £1,500+ do represent a very clear final cluster.

Table 2: Largest Three and Four Firms by RV, Hanley 1882.

Firm	RV (£)
Brown-Westhead, Moore, & Co.	2132
J. & G. Meakin	1310
Clementson Bros.	1187
J. & E. Ridgway	1130

Source: Hanley Borough Rate Book, 1882.

Table 3: Largest Three and Four Firms by RV, Stoke-upon-Trent 1892.

Firm	RV (£)
Mintons Ltd.	2596
Minton-Hollins, & Co.	1348
Campbell Tile Co.	1160
G. Jones and Sons Ltd.	1138

Source: Stoke-upon-Trent Borough Rate Book, 1898.

Table 4: A Biographical History of 44 Hanley Firms in 1872.

Type	Size				Total	
	Small No. %	Medium No. %	Large No. %	Giant No. %		
Survival:						
Static	10 36	3 30	0 -	0 -	13	29
Mobile:						
Up	0 -	4 40	5 100	1 100	10	23
Down	0 -	0 -	0 -	0 -	0	-
All	10 36	7 70	5 100	1 100	23	52
Entry	18 64	3 30	0 -	0 -	21	48
Total	28 100	10 100	5 100	1 100	44	100

Source: Hanley Borough Rate Book, 1872.

Table 5: A Biographical History of 24 Stoke-upon-Trent Firms in 1886.

Type	Small		Size Medium		Large		Giant		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Survival:										
Static	1	8	5	72	0	-	4	80	10	42
Mobile:										
Up	0	-	1	14	0	-	1	20	2	8
Down	0	-	0	-	0	-	0	-	0	-
All	1	8	6	86	0	-	5	100	12	50
Entry	11	92	1	14	0	-	0	-	12	50
Total	12	100	7	100	0	-	5	100	24	100

Source: Stoke-upon-Trent Rate Book, 1886.

Table 6: Registration of Firms as Limited Liability Companies, 1880-1900.

Firm	Capital (£)	Year of Registration
Wm. Davenport & Co.	40,000	1881
John Challinor & Co.	60,000	1882
The Staffordshire Potteries		
Cooperative Manufacturing Society	15,000	"
Mintons Ltd.	113,000	1883
British Anchor Pottery Co.	10,000	1884
Mintons Ltd.	84,750	1892
(re-registration)		
James Macintyre and Co.	50,000	1893
G. Jones & Sons Ltd.	48,000	1894
T. & R. Boote Ltd.	50,000	"
Wengers Ltd.	50,000	1895
John Maddocks & Sons Ltd.	75,000	1896
Taylor, Tunncliffe & Co. Ltd.	60,000	"
Booths Ltd.	65,000	1898
Rowley & Newton Ltd.	10,000	"
Potters Mills Ltd.	120,000	1899
Dunn, Bennett & Co.	35,000	"
Banner & Co.	5,000	"
Malkin Tile Works Co.	25,000	1900
Harrison & Son Ltd.	60,000	"
Taylor, Tunncliffe & Co.		
(reformation)	100,000	"
Upper Hanley Pottery Co.	10,000	"

Sheaf Pottery Co.

1,000

"

Source: The Pottery Gazette, 1880-1900.

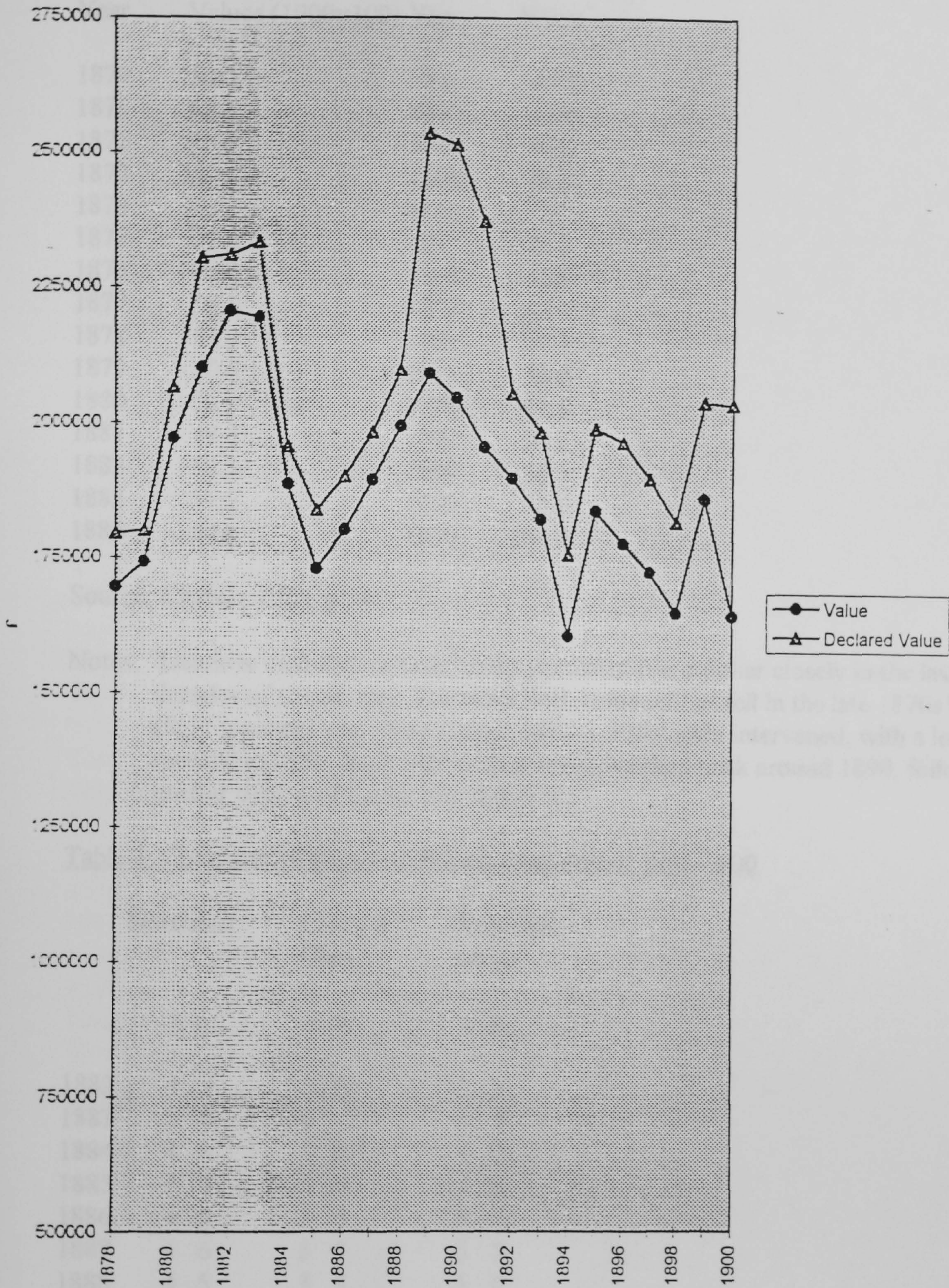
Appendix B: Data relating to the cost and demand structures of the pottery industry, export performance, and prices.

Table:1: Declared Real Value of Ceramic Exports, 1870-1900.

Year	Value(£)	Year	Value(£)
1870	1,746,153	1886	1,901,025
1871	1,731,483	1887	1,983,501
1872	1,986,187	1888	2,098,433
1873	2,048,872	1889	2,535,449
1874	1,732,340	1890	2,514,478
1875	1,752,324	1891	2,373,699
1876	1,771,179	1892	2,057,041
1877	1,766,690	1893	1,984,724
1878	1,794,218	1894	1,758,680
1879	1,799,956	1895	1,992,333
1880	2,065,518	1896	1,967,250
1881	2,203,550	1897	1,900,111
1882	2,309,138	1898	1,819,815
1883	2,333,167	1899	2,041,876
1884	1,955,694	1900	2,038,009
1885	1,838,163		

Source: United Kingdom Statistical Abstract 41/A 1868-1878, No.26, 41/A 1874-1888, No.36, 41/A 1886-1900 No.48.

British Ceramic Exports, 1878-1900



Source: Statistical Abstract of the UK, 41/A No. 26, No. 36, No. 48; Pottery Gazette 1878-1900

Table:2: Index of Pithead Coal Price Estimates, 1870-1900.

Year	Values (1900=100)	Year	Value
1870	50.0	1886	44.6
1871	52.3	1887	44.6
1872	75.4	1888	46.9
1873	119.2	1889	58.5
1874	103.1	1890	76.2
1875	78.5	1891	73.8
1876	68.5	1892	66.9
1877	60.8	1893	63.1
1878	54.6	1894	60.8
1879	50.8	1895	55.4
1880	50.0	1896	53.8
1881	48.5	1897	54.6
1882	52.3	1898	58.5
1883	51.5	1899	70.0
1884	50.0	1900	100.0

Source: Church, 1986, p.54.

Notes: Trends in coal and ceramic prices paralleled one another closely in the last two decades of the century. Prices for both commodities fell in the late 1870s before slight recovery was made around 1881-3. Falls again intervened, with a low being reached in 1885. Both indices displayed a marked peak around 1890, followed by a greater degree of fluctuation thereafter.

Table:3: Comparative Regional Pithead Coal Prices, 1882-1900.

	Northeast	Lancs & Ches.	West Mid-Lands
	s. d.	s. d.	s. d.
1882	4 9	5 10	7 1
1883	5 0	6 0	6 1
1884	4 9	5 10	6 2
1885	4 9	5 6	5 10
1886	4 6	5 3	5 0
1887	4 6	5 2	5 5
1888	4 5	5 5	5 6
1889	5 1	6 6	6 6
1890	7 5	8 2	7 6
1891	7 1	8 1	7 5

1892	6 4	7 5	7 3
1893	5 8	7 6	7 8
1894	5 9	6 11	6 10
1895	5 1	6 5	6 2
1896	5 1	6 3	5 10
1897	5 4	6 0	6 0
1898	5 11	6 6	6 1
1899	7 0	7 5	6 10
1900	10 4	10 9	10 2

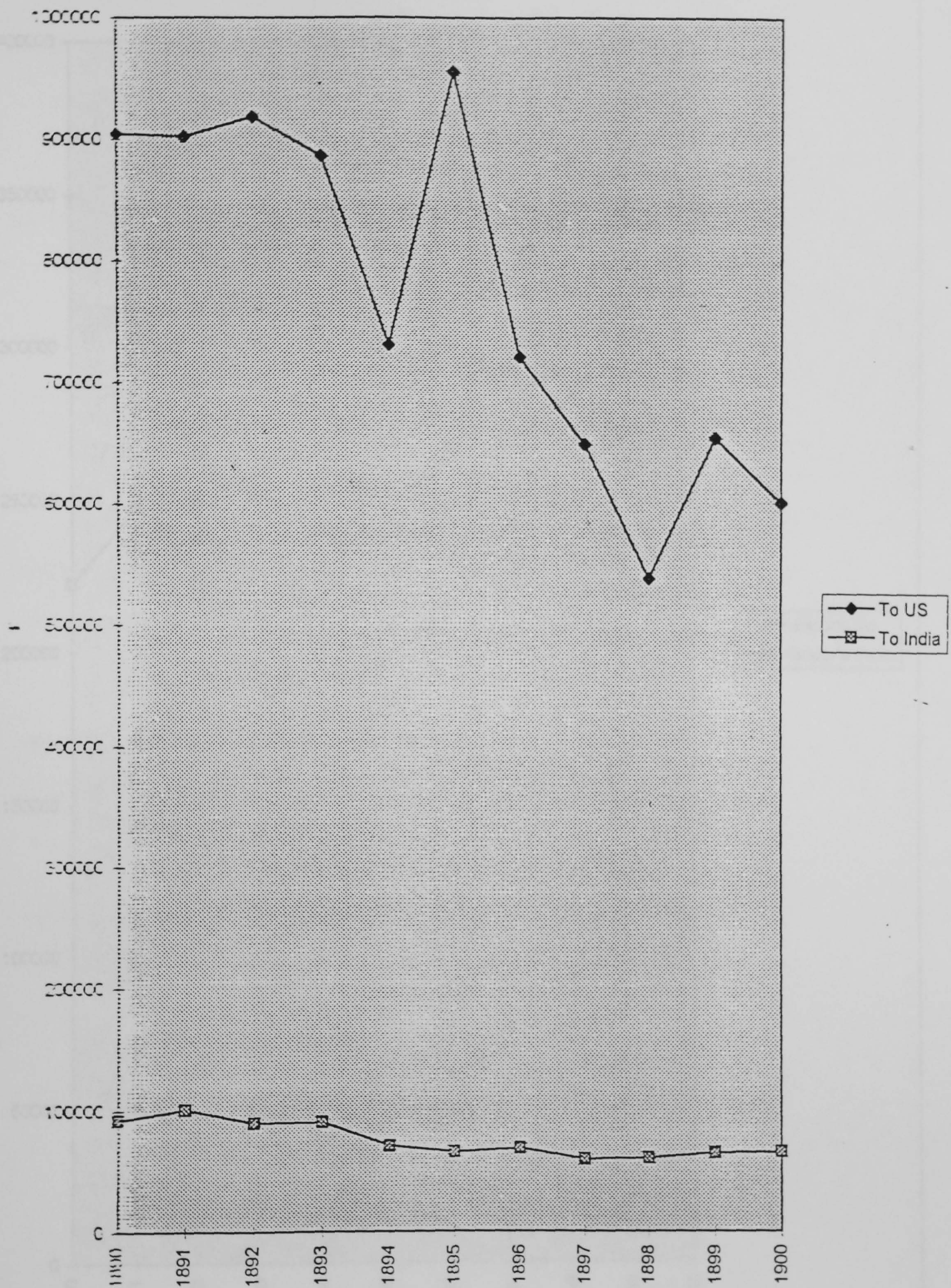
Source: Church, 1986, p.58-9.

Table 4: Output of Coal in the Staffordshire Coalfield, 1873-1900.

	Staffordshire (millions of tons)	U.K. Total Output (millions of tons)
1873	15.2	128.7
1874	13.0	126.6
1875	14.5	133.3
1876	13.9	134.1
1877	13.7	134.2
1878	13.1	132.6
1879	13.3	133.7
1880	13.7	147.0
1881	14.9	154.2
1882	15.0	156.5
1883	15.2	163.7
1884	14.4	160.8
1885	14.7	159.4
1886	13.3	157.5
1887	13.7	162.1
1888	14.5	169.9
1889	14.8	176.9
1890	14.7	181.6
1891	15.3	185.5
1892	15.0	181.8
1893	13.9	164.3
1894	14.1	188.3
1895	13.3	189.7
1896	13.9	195.4
1897	14.3	202.1
1898	14.6	202.1
1899	14.7	220.1
1900	15.0	225.2

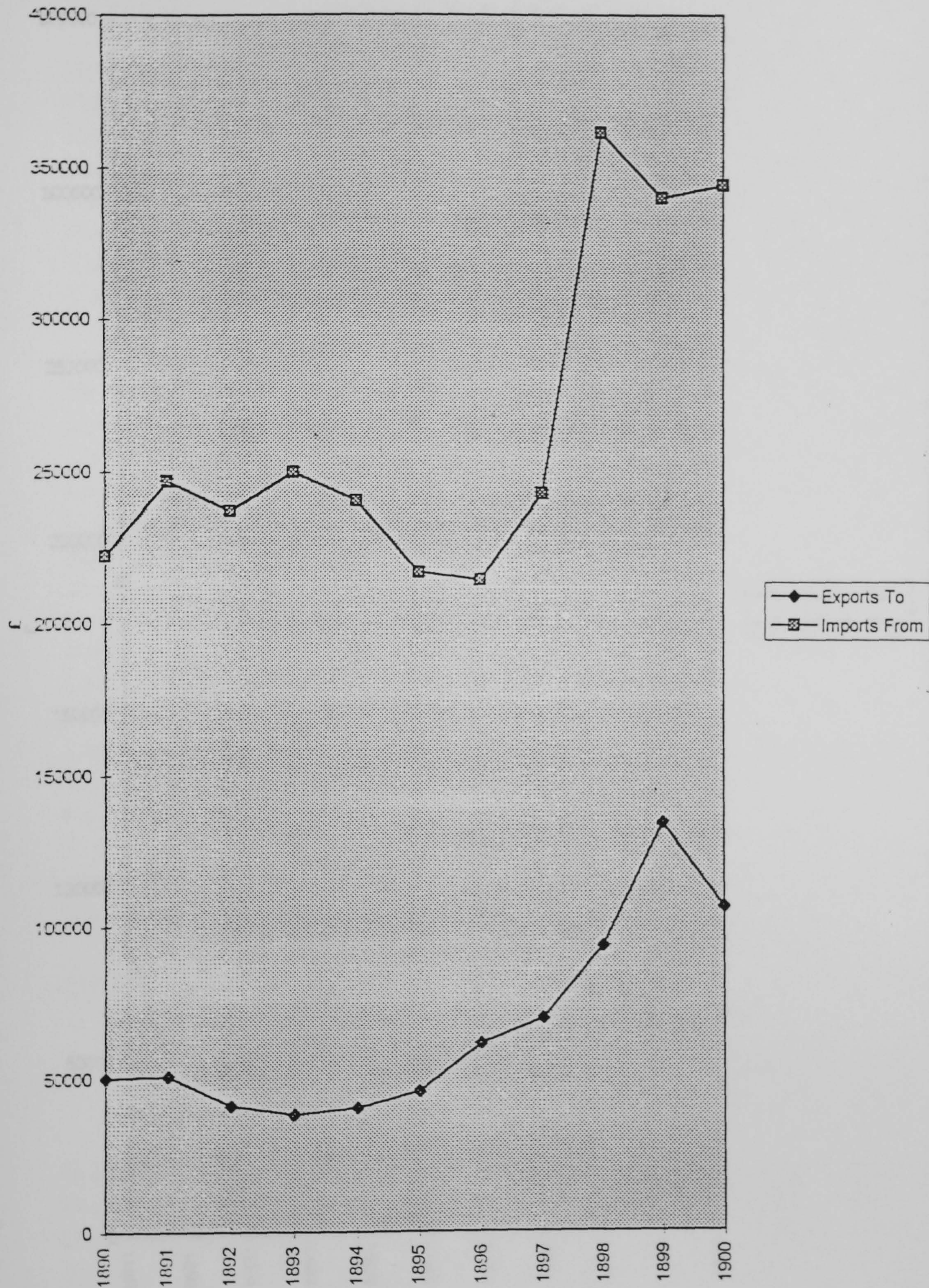
Source: Mitchell, B.R. & Dean, P. 'Abstract of British Historical Statistics' 1962, p.115-6

British Ceramic Exports to the U.S. & India, 1890-1900



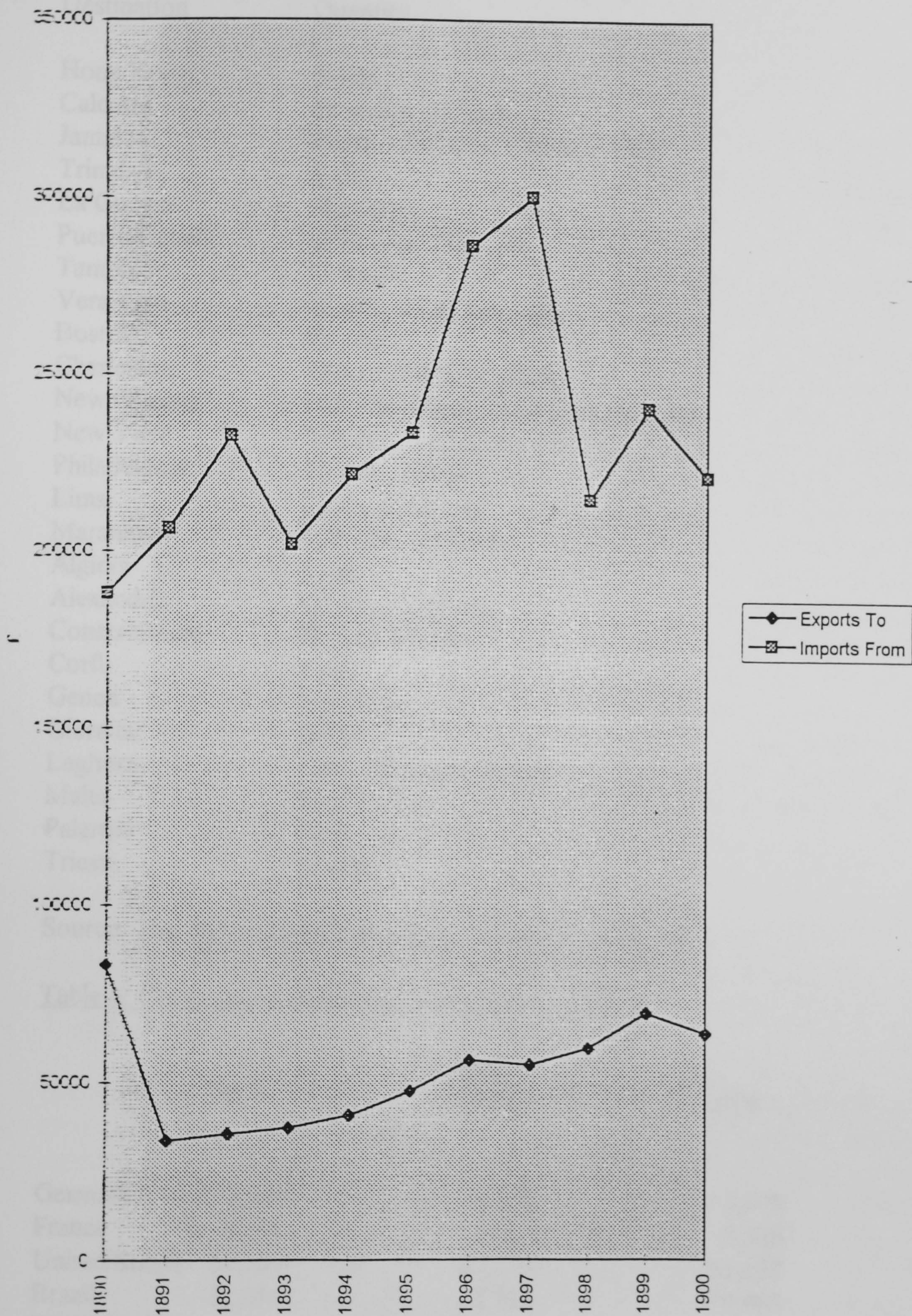
Source: Pottery Gazette 1890-1900

Ceramic Exports to and Imports from Germany, 1890-1900



Source: Pottery Gazette 1890-1900

Ceramic Exports to and Imports from Holland, 1890-1900



Source: Pottery Gazette 1890-1900

Table:4: Earthenware Exports Through Liverpool, 21-27 December 1849

Destination	Quantity
Hong Kong	8hhds
Calcutta	38 crates, 21 hhds
Jamaica	9 crts, 15hlf crts, 2 hhds, 1 cask
Trinidad	3 crts
La Guayra	50qr crts
Puerto Cabello	40hlf crts, 74qr crts
Tampico	35 crts
Vera Cruz	15 crts, 45hlf crts, 1csk
Boston	89 crts
Charleston	140crts,93hlfert11hhds
New Orleans	647 crts, 90hlf crts, 9 hhds, 10 csks
New York	258 crts, 240hlf crts, 66 hhds, 7 csks
Philadelphia	76 crts,, 2hhds
Lima	3 crts, 62hlf crts
Maranham	120 crts, 10hlf crts
Algiers	1 csk
Alexandria	40 crts, 31hlf crts
Constantinopl	40 crts, 67 csks
Corfu	1 csk
Genoa	1 package
Gibraltar	2 crts
Leghorn	1 crt, 38hlf crts, 2 hhds
Malta	1crt, 2 csks
Palermo	1 csk
Trieste	16 crts

Source: The Staffordshire Advertiser, January 5, 1850, p.2.

Table:6: Composition of Earthenware Exports, 1877-9.

	1877	May 1878	1879
		(£)	
Germany	7,600	3,892	4,678
France	7,691	9,157	5,516
United States	58,239	45,734	51,557
Brazil	11,954	12,268	10,908
British North America	17,593	10,832	6,564
British India	10,017	9,522	9,161

Australia	14,672	12,087	33,924
Others	39,739	36,758	47,490
Totals	167,505	140,245	169,820

Source: The Pottery Gazette, July, 1879.

Appendix C: Data relating to Mechanization.

1: Descriptions of Jiggers and Jollies.

As Celoria's descriptions suggest both the jigger and the jolly were remarkably simple machines, at least in theory if not always in practice. She notes 'When flat wares such as plates are to be made the potter can use a whirling 'table' on which is a solid plaster mould that has the shape of the inside of a plate. The first stage in making a plate or similar piece of flat ware is to place a slab or bat of clay on the mould. Next, to form the underside of the plate, he brings against the clay a brass profile template which is fixed to a sliding bar (or pivoting arm) of a rigid frame. The external outline is formed with a few turns of the wheel. This arrangement for producing flat wares is called jiggering'. Celoria goes on to describe the jolly thus, 'Jolleying is rotary moulding whereby a piece of clay inside a rotating mould is formed into a vessel by a tool lowered into the mould. The tool both presses the clay against the wall of the mould as well as shaping the inside of the vessel. The mould is generally plaster of paris. Two elementary general points may be made here. First jollies are usually for making the insides of small hollow ware vessels. Second the tool (which might be called a profile or template) is usually made to descend vertically down on the profile carrier. This contrasts with the lever action of a jigger machine which brings its profile down by rotating about a fulcrum...A variant of jolleying is produced when instead of a profile a 'plunger' is used, which may be described as a piston-shaped head like the intended inside shape of the vessel.'

Source: Celoria, 1973, p.38-9.

Appendix D: Data relating to Minton's Ltd.

1: Innovative Activity Within Minton's.

Almost all innovative activity within Minton's, including process innovations, was focussed on the decoration of wares. One example was the incredibly painstaking decorative technique known as *pate-sur-pate*, perfected by Art Director J.F.L. Arnoux. Another good example is provided by the Minton Patent Down Draught Oven, a small glaze oven specifically designed to complement the firm's focus on high quality, specialist wares by allowing for the use of new glazes and creating new decorative effects. However, though this oven was not designed to improve productivity or increase throughput, it was advertised as saving on fuel. This claim must be open to some doubt given the firm's difficulties in controlling cost and one French licensee of the oven, Messrs Haviland of Limoges, found material usage to be at least double that claimed by Minton's. Moreover,

many licensees, including Havilands, found that many months of costly experimentation with the oven were necessary before satisfactory results, and saleable goods, could be achieved. MMS.1003-21 consists of an interesting correspondence spanning the years 1875-1884 between Arnoux at Mintons and Havilands over the correct operation of the oven. Havilands noted at one point that it would be 'A feather in Mintons' cap if Arnoux could succeed' where they had failed.

As has been suggested Mintons were interested in developing the oven not simply for their use but hoped also that it would generate an income through licensing agreements. To this end the oven, first patented in Britain in 1873, was patented in Belgium, Italy, and Denmark in 1874, and in the United States in 1875. A considerable degree of diffusion does seem to have taken place, see MMS. 958-963 for patent details. An advertising circular of 1876 carried the endorsement of eight firms in the Potteries, including modern, large firms such as Powell and Bishop, and highly respected houses such as Wedgwoods, furthermore, in 1879 action had to be taken to counter an infringement of the patent by the firm of Bonneville, also of Limoges., MMS. 975-6 and MMS. 970. Agents for the oven were sought abroad and a letter dated October 1884 refers to Havilands operating as Mintons French agent (for the oven, not wares), though later in the same month the agreement between the two firms had collapsed into acrimony, MMS. 1017-8. A further undated letter, but in the hand of Arnoux who retired in 1892, makes reference to a William Brookes, 'our agent in New York', MMS. 1086. However, given the many difficulties Havilands and a number of other licensees, and even Mintons, had in operating the oven it seems unlikely that their sale ever yielded a significant income, despite the many years for which the firm persisted with the innovation. The oven was, however, extensively deployed throughout Mintons own works in Stoke.

Table 2: Sales of Ware by Value, 1876-9 and 1884-94 and Profit and Loss in Those Years.

Year	Value £	Profit £	Loss £
1876	128,102	9,000	
1877	117,538	10,000	
1878	123,935	1,000	
1879	115,753	5,000	
1884	132,972	11,000	
1885	107,773	2,000	
1886	103,058	2,000	
1887	98,422		6,000
1888	92,702		6,000
1889	105,167		5,000
1890	101,210		2,000
1891	97,273		4,000
1892	87,824		5,000
1893	97,273		1,000

1894

75,367

7,000

Source: MMS. 501-3 Reports on Accounts 1877-9, MMS. 1328 Annual Summary Book, Abstract of Sales, and MMS. 231 Profit and Turnover from Accounts.

Table:3: Details of Expenditure in 1878 as Against 1877.

Description of Expense	Increased as % on Ware Made	Amount Increased £	Decreased as % on Ware Made	Amount Decreased £
Materials	2.32	846		
Accessory Materials	.32			358
Saggars	1.03	1166		
Repairs to Works	.54	432		
Carriage	.07	42		
Exhibitions	1.32	1550		
Wages and Salaries	2.06			597
Models and Designs			.10	220
General Expenses	.34	323		
Travelling, Commission			.67	886
Legal			.16	199
Rent and Rates	.39	167		
Discounts and Allowances	.25	92		
Bad Debts, Lost Packages etc.			.07	78
Total	9.00	5,026	.91	2,318
Interest		367		
Walbrook Expenses				906
Bonuses				295
Net Increased Expenses		1,874		
Reduced Value of Ware Made		6,522		

Decreased
Profit

8,411

Source: MMS. 502 Report on Accounts to 11 August 1878.

Appendix E: Data Relating to Jesse Shirley and Sons.

1: A Description of the Firm's Physical Resources.

The processing of bones in order to make them suitable for use in ceramic manufacture involved several stages, none of them requiring great skill but all involving some machinery and a great deal of physical labour. The bone had first to be boiled in order to remove any remnants of fat or flesh. Cattle bone was the most suitable, and much of the bone processed by Shirleys came from the rich dairy farming areas of the Cheshire plain to the west of the Potteries. Size and tallow were valuable by-products of boiling, which took place in a large vessel over three days. Smaller and less valuable quantities of oil and grease were also obtained. Following boiling the bones were calcined, that is placed in a kiln, covered with wood and burnt, the use of wood being vital to avoid the contamination of the final product. A few pottery manufacturers bought bone in a calcined but unground state, suggesting partial processing of materials was viable. Calcined bones were then ground in water, in order to reduce dust, this took some eight hours and the resultant slop or solution was drained and dried over coal-fired evaporating beds, though again a few manufacturers some times bought slop bone. Drying was the final process and produced a fine bone powder, ready to be added to ceramic bodies.

Some idea of the resources required by this process is conveyed by the Belgian Guillaume Lambert, who in 1863 inspected Furnivals mill in Etruria, which he felt to be a little smaller than the nearby 'Etruscan Mill', equipped with machinery by Kirk and undoubtedly the mill built by Shirley in 1857. At Furnivals Mill Lambert found a steam engine, flywheel, a series of gearings, four roller mills and four smaller glaze mills, a power driven hoist, two blungers to handle ground material, two cylindrical grinders for calcined flints, tracks for trucks carrying material, calcining and glaze ovens, and a crane for lifting grindstones. The work involved in processing bone required a great deal of physical labour shifting large quantities of raw materials and as a result the workforce at Shirleys did not show the degree of stratification typical of manufacturing firms.

Details from Rate Books also provides evidence of the firms resources. In 1872 the firm owned and occupied three sites in Etruria, with a total RV of £375. At Bells Mill (RV £110) there was an engine flint and colour pans, washtubs, reservoir, machinery and yard. At Etruria Vale (RV £240) there was a second engine, further pans and machinery, a yard and canal frontage. Also at Etruria Vale were bone sheds, boilers, stabling, offices, weighing machines, crane and wharf (RV £25).

Source: Celoria 1973, Hanley Borough Rate Book, 1872.

2: The Mill of 1857.

As has been suggested the Mill built in 1857 considerably expanded the firm's capacity, and an outline of the costs involved can be given as expenditure was recorded with some care. However, it is difficult to provide a definite final costing as expenditure on building faded in into general maintenance expenses. However, by the end of 1858, by which time the mill was substantially complete, expenditure amounted to £1,802-0-7, somewhat less than the firms's typical half-yearly expenditure on raw bone. A year later the total cost of the Mill stood at £3,433-10-2. At the heart of the new mill stood a steam engine, supplied by Thomas Vickers & Co. of Stockport and installed by a local engineer, George Kirk of Etruria. The engine cost £27-5-6, its transportation £49. Installation was expensive. Kirk was paid £116-5-10 in December 1857, for work 'to date' and a further £232-11-0 in June 1858, again for installation. Kirk was then paid £500 in cash in early 1860, and although on this occasion the ledgers do not specify what the payment was for Lambert's evidence would suggest that Kirk was responsible not only for installing the engine but also for supplying all other machinery, i.e transmission systems, grinding mills, hoists etc.

However, in the period 1857-8 expenditure on the engine only amounted to one third of total expenditure, the rest went on a near continuous supply of building materials and labour, and to a much smaller amount spent on miscellaneous other expenses, such as Jesse Shirley's travel expenses to Stockport. Building work was carried out by a local man, Ralph Willot, and joinery by R. Barker. Smaller amounts were also spent on ironmongery, blacksmithing, slating, painting, and the installation of gas supplis and appliances.

Source: Ledger, 1857.

Table:1: Suppliers of Bone to J. Shirley & Sons, 1857 & 1884.

Supplier	Location	Value of Bone Supplied (£)
1857 (July to December, inclusive)		
John Gray	Hagley	1,259-10-1
Wm. Dailey	Tunstall	38-2-9
J.B. Boulton	Newcastle	59-15-10
J. Holt	Burlsem	45-11-0
Chas Thompson	Stone	13-8-8
T. Culshaw	Newcastle	44-7-5
J.& J. Peake	Stoneyfields	370-0-0
J. Waring	Liverpool	355-5-0
Sam Downs	Liverpool	565-8-4
1884		
Edw. Burke	Crewe	148-18-6

J.B. Scally	Newcastle	145-14-3
Powell & Stonier	Tunstall	71-14-3
John Gray	Hagley	368-19-7
Ann Cain	Longton	24-0-3
Wm. Brownfields & Sons	Cobridge	68-15-0
S. Mear	Longton	561-5-8
Stuart & Sons	Hanley	85-5-4
Andrew Smith	Shrewsbury	402-9-6
Mrs. Marsh	Newcastle	13-10-0
John Clewlow	Cheadle	63-1-5
Peter Murphy	Longton	10-9-8
Thos. Hitcham	Market Drayton	41-10-1
Wm. Evans	Rugeley	59-4-9
R. Samuels	Longton	98-6-2
S. Smith	Dudley	590-15-0
C. Massey & Sons	Newcastle	62-18-1
Geo Bloor	Hanley	81-7-9
H. Webb	Tunstall	41-6-3
E.B. Greatbach	Stoke	141-16-0
G. Bennett & Sons	London	140-0-0
Augustus Towill	Liverpool	445-14-2
Liventon & Co.	Liverpool	759-7-1
Heyworth, Harl & Co.	Liverpool	343-9-2
Wm. Smith	Liverpool	714-10-8

Source: Ledgers, 1857 & 1884.

Table 2: Suppliers of Coal to J. Shirley & Sons, 1857 & 1884.

Supplier	Location	Value of Coal Supplied (£)
1857 (July to December, inclusive)		
Fox & Tinsley	Cobridge	102-1-9
Adderley & Dean	Norton	13-2-0
Thomas Brindley	Cobridge	36-5-6
Charles Hales	Ford Green	17-4-9
1884		
Butterly Colliery Co.	Silverdale	309-5-8

Hanley Colliery Co.	Hanley	300-3-0
H. Warrington	Hanley	59-2-1

Source: Ledgers, 1857 & 1884.

Table 3: Customers of J. Shirley & Sons, 1857 & 1884.

Name	Location	Product/Service Bought
1857		
J. & J.M. Worrall	Manchester	Size and Tallow
Thos. Vickers	Stockport	Tallow
J. Place	Nottingham	Bone Powder
Griffin, Morris & Griffin	Wolverhampton	Ground Bone
Wm. Locker & Co.	Derby	Ground Bone & Stone
J. Sharrow	Doley	Bone
J. Lockett	Longton	Ground Bone
Allerton & Co.	Longton	Ground Bone
Mayer Bros. & Elliott	Longport	Ground Bone
Cockson & Harding	Cobridge	Ground Bone & Stone
Ridgway & Abington	Hanley	Ground Bone
Thomas Green	Fenton	Ground Bone
Elsmore & Forster	Tunstall	Ground Bone
T. & R. Boote	Burslem	Ground Bone
R.H. Haywood	Brownhills	Bone
1884		
Warrilow & Cope (China manu)	Longton (Wellington Works)	Ground Bone
Pointon & Co. (China manu)	Shelton (Norfolk Works)	Grinding & Ground Bone
Wardle & Co. (Majolica manu RV £211)	Shelton (Washington Works)	Grinding & Slop Flint
Skelson & Co. (China manu)	Longton (Normacott Rd.)	Ground Bone
M. Clarke (Brick & Quarry manu)	Shelton (Slippery Lane)	Marl & Quarries
Shorter & Boulton	Stoke	Slop Flint & Stone, Grinding Colour & Glaze
(Majolica manu RV £83) Bridgett, Baker & Co. (China manu)	(Copeland St.) Longton (King St.)	Ground Bone

G.L. Ashworth Bros (Ironston, china & earthenware RV £434)	Shelton (Broad Street)	Grinding Glazes
A. Wenger (Colour manu RV £45)	Hanley (Parker St. Works)	Grinding & drying Colours
Banks & Morley (Earthenware & Majolica manu RV £100)	Hanley (Boston Works, High St.)	Grinding & Stone
Robinson & Son (China manu)	Longton (Sutherland Rd.)	Ground Bone & Stone, & Grinding
Edw. Steele (Earthenware & Parian Manu RV £80)	Hanley (Cannon St.)	Slop FLint & Stone
Wm. Stubbs (Earthenware manu RV £314)	Hanley (Eastwood Pottery)	Ground Bone
S. Lear (China decorator RV £32)	Hanley (High St.)	Grinding
Wm. Webberley (China manu)	Longton (St. James Works)	Ground Bone
T.A. & S. Green (China manu)	Fenton (Park St.)	Ground Bone
Allerton & Sons (China & earthenware manu)	Longton (Park Works)	Ground Bone
George Jones & Sons (Earthenware manu RV £1070)	Stoke (London Rd.)	Stone & Bone Dust
Jackson Bros (Tile manu)	Shelton (Castlefield Works)	Slop Flint & Stone
Jones & Howson (China manu)	Longton (Market St.)	Ground Bone
E. & C. Challinor (Potters millers RV £272)	Stoke (Glebe St.)	Slop Flint
Adderley & Lawson (China manu)	Longton (Salisbury Works)	Ground Stone
Mellor, Taylor & Co. (Earthenware manu)	Burslem	Ground Bone
Thos. Bevington (China manu RV £211)	Hanley (Burton Place)	Ground Bone
Joseph Day & Co. (China manu)	Longton (High St.)	Ground Bone & Stone
J.B. Scally (Beer & Rag retailer)	Newcastle (Lower St.)	Rags

George Kirk (Engineers)	Etruria (Etruria Iron Works)	Labour
S. Bourne	Betton Coppice	Nickel Soda
John Gray	Hagley	Bone
J.S. Blakelow	Stone	Bone Manure
Furnival	?	Soda
Wm. Jackson (F.E.I.S. Academy)	Greets Gate (Edward St.)	Fine Bone
Hanley Colliery Co. (Colliery)	Hanley (Northwood Colliery)	Slack
John Riley (Cooper & furntiure remover)	Hanley (Mill St.)	Casks & Barrels
John Whitehead	Elton	Size
James Dean (Maltster & Farmer)	Betley (The Black Horse)	Bone & Bone Manure
W. Pickersgill (Joiner)	Etruria (Canal Bridge)	Labour
Sam Lewis (Farmer)	Audley (Town House)	Hay
James Goodall	?	Ground Bone
G.C. Usher	London	Bone Powder & Slop Flint
Wm. Garrett & Co. Butterly Colliery (Coal & Iron Works)	Halifax Silverdale	Size Slack
John Jones (Chemist)	Stoke (High St.)	Best Bone
Gillespie & Co. ?	Liverpool Manchester	Ground Stone & Dried Flint Size
Geo. Granger & Co.	Worcester	Ground Stone
J. Place & Co.	Nottingham	Bone Powder
F. Hampson & Co.	Manchester	Size
Pearsons	Worcester	Bricks
Thos. Vickers & Co.	Stockport	Tallow
E. Milder	Gnosall	Fine Bone
C. Kempson & Sons	London	Best Ground Bone
The Animal Product Co.	Liverpool	Boiled & Unboiled Hoof
Gibson & Co.	Manchester	Size

Source: Ledger & Order Book 1884, Keates & Fords Directory to the Staffordshire Potteries & Newcastle 1884, Hanley Borough Rate Book 1882, & Stoke-upon-Trent Borough Rate Book 1886

Appendix F: Data Relating to the Potteries/North Staffordshire Chamber of Commerce &
The North Staffordshire Exchange

Table 1: Members of the Potteries Chamber of Commerce, 1866.

Name	Location & Description
Hon. Members	
Rt. Hon C.B. Adderly	
Rt. Hon Viscount Ingestre	
Alderman Copeland	Stoke, Earthenware & China Manufacturer
H.R. Grenfell, Esq. M.P.	Stoke, Banker & Politician
Subscribing Members	
Wm. Adams	Tunstall, Earthenware Manufacturer
Wm. Adams, jnr.	" " "
G. Ashworth & Bros.	Hanley, Earthenware & China Manufacturer
G. Baguley	Hanley, China Manufacturer
T.W. Barlow	Longton, Earthenware Manufacturer
Beech & Hancock	Tunstall, Earthenware Manufacturer
James Beech & Sons	Longton, China Manufacturer
Blackhurst & Dunning	Tunstall, Earthenware Manufacturer
T. & R. Boote	Burslem, Earthenware Manufacturer
H. Burgess	Burslem, Earthenware Manufacturer
Burgess & Leigh	Burslem, Earthenware Manufacturer
S. Bridgwood & Son	Longton, China & Earthenware Manufacturer
James Broadhurst	Longton, Earthenware Manufacturer
Wm. Brownfield	Cobridge, Earthenware Manufacturer
Brown-Westhead, Moore & Co.	Hanley, Earthenware & China Manufacturers
John Buckley	Hanley, Earthenware Manufacturer
Charles Bullock	Longton, China Manufacturer
Cartwright & Edwards	Longton, Earthenware Manufacturer
E. & C. Challinor	Fenton
E. Clarke	Tunstall
Joseph Clementson	Hanley, Earthenware Manufacturer
J.T. Close	Stoke
W.T. Copeland	Stoke, Earthenware & China Manufacturer
Cork, Edge & Malkin	Burslem, Lustre & Earthenware Manufacturer
Wm. Davenport & Co.	Longport, Earthenware & China Manufacturer
Davenport, Banks & Co.	Hanley, Earthenware Manufacturer
James Dudson	Hanley, China & Earthenware Manufacturer
Eardley & Hammersley	Tunstall, Earthenware Manufacturer
John & Jmaes Edwards	Fenton, China & Earthenware Manufacturer

Richard Edwards
L. Elliot & Sons
T. & C. Ford
Ford, Challinor & Co.
J. Furnival & Co.
J. & R. Godwin
Hampson Bros.
Hancock, Whittingham & Co.
Hill Pottery Co.

W. & J Harding
Heath, Blackhurst & Co.
Holdcroft, Hill & Mellor
Hope & Carter
Elijah Hughes
Thomas Hughes
G. Jones & Co.
Joseph Knight
Livesley, Powell & Co.
James Macintyre
J. Maddock & Sons
Mawdsley & Co.
J. & G. Meakin
Charles Meigh jnr.
J. Meir & Son
Minton & Co.
Minton, Hollins & Co.
Morgan, Wood & Co.
James Oldham
J. & W. Pankhurst
E. Pearson

Pinder, Bourne & Co.

F. & R. Pratt & Co.
Anthony Shaw
Sampson Smith
E. & J. Ridgway
Robinson & Son
Wm. Stubbs
Taylor Bros.
Wm. Taylor
Turner & Tomkinson
James Vernon
Wm. Webberley
Wedgwood & Co.

Longport
Longport, Civil Engineer
Hanley, China Manufacturer
Tunstall, Earthenware Manufacturer
Cobridge, Potters Miller
Cobridge, Earthenware Manufacturer
Longton, Earthenware Manufacturer
Burslem, Earthenware Manufacturer
Burslem, China, Earthenware, Parian, & Majolica
Manufacturer
Hanley
Burslem, Earthenware Manufacturer
Burslem, Earthenware Manufacturer
Burslem, Earthenware & Ironstone Manufacturer
Cobridge, Earthenware Manufacturer
Cobridge, Earthenware Manufacturer
Stoke, Earthenware Manufacturer
Fenton
Hanley, Earthenware Manufacturer
Burslem, Door Furniture
Burslem, Earthenware Manufacturer
Tunstall
Hanley, Earthenware Manufacturer
Hanley, Earthenware Manufacturer
Tunstall
Stoke, China & Earthenware Manufacturer
Stoke, Tile Manufacturer
Burslem, Earthenware Manufacturer
Hanley, Earthenware Manufacturer
Hanley, Graniteware
Cobridge, Earthenware & Ironstone
Manufacturer
Burslem, Earthenware & Ironstone
Manufacturer
Fenton, China Manufacturer
Burslem, Earthenware Manufacturer
Longton, China & Lustre Manufacturer
Hanley, Earthenware Manufacturer
Longton, China Manufacturer
Hanley, Earthenware & China Manufacturer
Hanley, Earthenware Manufacturer
Hanley, Earthenware Manufacturer
Tunstall, Earthenware Manufacturer
Burslem, Earthenware Manufacturer
Longton, China Manufacturer
Tunstall, Earthenware Manufacturer

J. Wedgwood & Sons	Etruria, China & Earthenware Manufacturer
Wilkinson & Sons	Hanley, China Manufacturer
E.T.W. Wood	Tunstall, Earthenware Manufacturer
Worthington & Sons	Hanley, China & Earthenware Manufacturer

Source: Keates & Fords Directory of the Staffordshire Potteries & Newcastle, 1866, Slaters Commercial Directory, 1862, & Stuart, 1985.

Table 2: Committe of the Potteries Chamber of Commerce, 1874.

Name	Location & Description
W. Adams	Tunstall, Earthenware Manufacturer
S. Bridgwood	Longton, China & Earthenware Manufacturer, & Potters Miller
J. Bull	
W. Boulton	Burslem, Potters Engineer
T.C. Brown-Westhead	Hanley, Earthenware Manufacturer
G. Barker	
M.F. Blakiston (Secretary)	
C. Challinor	Fenton, Colliery Owner
E. Clarke	
J. Edge	Burslem, Earthenware Manufacturer
C. Dickenson	Stoke, Cornmillar
J.H. Goddard	Longton, Colliery Owner & Pottery Exporter
M.D. Hollins	Stoke, Tile Manufacturer
R. Heath	Tunstall, Coal & Iron Master
C.J. Homer	Hanley, Mining Engineer
G. Jones	Stoke, Earthenware Manufacturer
W. Keary	Stoke, Solicitor
T.J. Keeling	Hanley, Potters Miller
J. Knight	Fenton
O. Lodge	Stoke, Scientist
J. Maddock	Burslem, Earthenware Manufacturer
R.E. Narramore	
E. Powell	Hanley, Earthenware Manufacturer
J.N. Peake	Tunstall, Tile Manufacturer
J. Ridgway	Hanley, Earthenware Manufacturer
G. Ridgway	Hanley, Miller
A. Shaw	Burslem, Earthenware Manufacturer
T. Udall	
G. Wedgwood	Etruria, China & Earthenware Manufacturer
F. Wragge	
J.F. Wileman	Fenton, China & Earthenware Manufacturer
E. Wedgwood	Tunstall, Earthenware
E.T. Wood	Burslem, Earthenware Manufacturer

W. Woodall
J. Warner

Burslem, Earthenware Manufacturer

Source: Paper Cuttings, Vol.4, H.B.R.L.

Table 3: Council of the North Staffordshire Chamber of Commerce, 1882.

Name	Location & Description
G. Wedgwood (President) F.W. Wragge (Vice-President)	Etruria, China & Earthenware Manufacturer
Charles Adams F. Allen G.L. Ashworth S. Cole W.F. Drew T. Hampton J.B. Harding G. Meakin T.C. Moore F. Moore R.E. Narramore E. Powell R. Reeve W. Stubbs M.F. Blakiston W.E. Brownfield J. Edge W. Boulton W.M. Edge R. Heath M.P. R. Heath jnr. T. Hughes J. Maddock A. Shaw W. Woodall M.P. C. Challinor M.D Hollins O. Lodge H. Minton E. Pamphilon A.C. Meir J. Reeves E. Brunt (Secretary)	Hanley, Potters Miller Hanley, Earthenware & China Manufacturer Hanley, Glass Manufacturer Hanley, Brick Manufacturer Hanley, Brick & Tile Manufacturer Hanley, Earthenware Manufacturer Hanley, Earthenware Manufacturer Hanley, Earthenware Manufacturer Hanley, Earthenware & China Manufacturer Clerk of the Peace for the County Hanley, Potters Miller Burslem, Earthenware Manufacturer Burslem, Potters Engineer Tunstall, Coal & Iron Master Cobridge, Earthenware Manufacturer Burslem, Earthenware Manufacturer Burslem, Earthenware Manufacturer Burslem, Earthenware Manufacturer Fenton, Colliery Owner Stoke, Tile Manufacturer Stoke, Scientist Stoke, China & Earthenware Manufacturer

Source: Keates & Ford Directory to the Staffordshire Potteries & Newcastle, 1882.
Stuart, 1985.

Table 4: Committee of Management of the North Staffordshire Exchange, 1859.

Name	Location & Description
W. Bates (Chairman)	
R. Brown	
H.C.	
J. Forsyth	Stoke, Railway Engineer
W. Ford	Burslem, Builder
D. Hampson	Longton, Earthenware Manufacturer
R. Heath	Tunstall, Coal & Iron Master
M. Hollins	Stoke, Tile Manufacturer
J. Maddock	Burslem, Earthenware Manufacturer
T. Peake	Tunstall, Tile Manufacturer
T. Pinder	Burslem, Earthenware Manufacturer
W. Roden M.P.	Hanley, Ironmaster
W. Webberley	Longton, China Manufacturer
F. Wragge	

Source: Paper Cuttings, Vol.4, H.B.R.L.

5: 'Rules and Regulations for the Government of the North Staffordshire Exchange', January 17, 1859.

That this association be called the North Staffordshire Exchange.

That the association consist of such persons as have already given in their names as subscribers to the Exchange (to the amount of 10s 6d for one person, or £1 1s for a firm) and of such others as shall hereafter become subscribers to a similar amount.

That the entire management of the Exchange, and of all matters connected with it shall be vested in a Committee of Management subject to these rules and regulations, and to other such rules and regulations as shall from time to time be made as herein after mentioned.

That the Committee of Management shall have power to take all such steps as they may think advisable for the establishment and carrying on of the Exchange, and to pay all expenses incurred by the Provisional Committee to the present time, and from time to time to make all such bye laws and regulations relating either to the admission or exclusion of members, or to the general management of the Exchange as they may think proper. But such bye laws and regulations shall be in force only till the next meeting of the subscribers unless then confirmed.

That a general meeting of subscribers be held in the month of January every year, at such time and with such notice as the Committee shall direct.

That special general meetings of the subscribers shall be called whenever desired by the Committee, or by requisition to the Committee, signed by ten subscribers.

That at the annual meeting in January 1860, the Committee of Management shall be appointed for the year then ensuing, one half of whom shall be selected from the Committee and shall serve for one year from that time, and the other half shall serve for two years, and at every subsequent annual meeting those members who have served two years shall go out of office, but be eligible for reappointment and the members appointed to fill the vacancies shall serve for the two years then following.

That the Committee of Management have power to fill up various vacancies occurring in their number by resignation or other causes during the year.

That no alteration be made on these rules and regulations except at a general meeting of the subscribers, in the advertisement conveying which special notice shall have been given of the proposed alterations.

Table 6: Committee of the North Staffordshire Exchange, 1875.

Name	Location & Description
R. Heath M.P. (President)	Tunstall, Coal & Iron Master
A. Shaw (Vice-president)	Burslem, Earthenware Manufacturer
C. Minton-Campbell	Stoke, China & Earthenware Manufacturer
M.F. Blakiston	
H.T. Davenport	Hanley, Earthenware Manufacturer
W. Keary	Stoke, Solicitor
T. Udall	
H. Cartledge	
C.J. Homer	Stoke, Mining Engineer
S. Keeling	Hanley, Potters Miller
J. Meakin	Hanley, Earthenware Manufacturer
J.H. Goddard	Longton, Colliery Owner & Pottery Exporter
W. Casson	Smallwood
A. May	Congleton

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